

Aquatic Enhancement & Survey, Inc.

West Otter Lake Aquatic Vegetation Management Plan Update, Steuben County, Indiana 2006

Prepared for:

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Executive Summary

West Otter is a 118 acre glacial lake has been colonized by the invasive submersed exotic plant Eurasian watermilfoil, *Myriophyllum spicatum*. This non-native species has been interfering with boating and fishing which are popular activities at the lake. The milfoil growth also has the potential to negatively affect fish and wildlife by altering habitat and decreasing the diversity of West Otter Lake's plant community. Both lakeside residents and lake users who launch watercraft at the IDNR boat ramp have been affected by the The purpose of this plan is to provide guidance to IDNR and the West Otter Lake Association in achieving the following goals: 1. Restore and maintain a stable, diverse aquatic plant community that supports a good balance of predator and prey fish and wildlife species, good water quality, and is resistant to minor habitat disturbances and invasive species. 2. Direct efforts to preventing and/or controlling the negative impacts of aquatic invasive species. 3. Provide reasonable public recreational access to West Otter Lake while minimizing the negative impacts on plant, fish, and wildlife This update to the 2005 Aquatic Plant Management Plan for West Otter resources. Lake summarizes 2006 season plant management activities, the current character of the lake's plant community, and the response of lake-users to activities under the plan. It also provides a proposed course for future management that is consistent with the original plan goals. A Tier I plant survey was performed on West Otter Lake on 5/15/06. Fifteen acres of dense Eurasian watermilfoil growth were prioritized for treatment with 2, 4-D granular selective broad-leaf herbicide in West Otter Lake in 2006. This treatment was carried out on 5/18/06. A second Tier I survey was conducted on 8/4/06 and a Tier II plant survey was completed on 8/14/06. The surveys revealed that excellent control of Eurasian watermilfoil had been achieved in the treatment areas. While Eurasian watermilfoil plants were present in the treated areas, growth was light and scattered. Results were much better than in 2005 when nuisance levels of regrowth were present in much of the treatment area. Residents did indicate that regrowth occurred after the August surveys had been conducted. Based on the 2006 season results it's recommended that the West Otter Lake Association seek funding to repeat treatment of approximately the same acreage in the 2007 season with granular 2,4-D Because significant regrowth was experience during the 2005 season, herbicide provisions should be made to repeat the 15 acre treatment within the 2007 season if necessary. Because significant problems were experienced with Curlyleaf pondweed it's recommended that an ultra-early contact herbicide treatment is conducted in problem shoreline areas to try to reduce the reproductive success (turion formation) of this plant. To avoid the possible development of eventual resistance to treatment a switch to another granular systemic herbicide for Eurasian milfoil control in alternate years may be advisable in future seasons if such a product should achieve EPA licensing, become available to the aquatic market, and prove efficacious. The estimated cost for the initial application of 2, 4-D to 15 acres in West Otter Lake is 6540.00 with an additional cost of 6540.00 if full re-treatment should be needed. The estimated cost of a 2.5 acre ultraearly contact herbicide treatment for Curlyleaf pondweed is 670.00. Because the spread of Purple loosestrife to area wetlands has implications for water quality, a lake-marginal treatment for this plant is also recommended for an estimated cost of \$900.00. estimated cost of planning and plant surveys for 2007 is 3100.00.

1.0 Introduction

Efforts to control vegetation have been ongoing at West Otter Lake since at least 1968. Prior to 2004 no comprehensive program existed to treat all the lake's significant milfoil growth. Treatments have been mostly funded by single property owners or small groups of property owners seeking relief from plant growth along their frontages/channels. In 2004 the West Otter Lake Association funded a widespread contact herbicide treatment of most of the colonized areas. Beginning in 2005 systemic herbicides have been used to treat the lake's Eurasian watermilfoil comprehensively through cost-share grants obtained by the West Otter Lake Association through the IDNR Lake and River Enhancement program. In 2006 the treatment of a 2.4 acre area of problem Curlyleaf pondweed also took place. The Curlyleaf treatment was funded by the lake association.

2.0 Watershed and Lake Characteristics

There have been no significant changes in the current year.

See: Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana (Aquatic Enhancement & Survey, Inc. 2005)

3.0 Lake Uses

There have been no significant changes in the current year.

See: Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana (Aquatic Enhancement & Survey, Inc. 2005)

4.0 Fisheries

There have been no significant changes in the current year.

See: Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana (Aquatic Enhancement & Survey, Inc. 2005)

5.0 Problem Statement

There have been no significant changes in the current year.

See: Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana (Aquatic Enhancement & Survey, Inc. 2005)

6.0 Vegetation Management Goals and Objectives

There have been no significant changes in the current year.

See: Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana (Aquatic Enhancement & Survey, Inc. 2005)

7.0 Plant Management History, 2006 Season Management Actions

Eurasian watermilfoil was targeted for treatment on a lake-wide basis on West Otter Lake in 2006. Patterns of colonization of this invasive plant vary, but often Eurasian watermilfoil forms dense colonies that excluded or nearly exclude the growth of other plants by forming light-blocking overgrowth early in the season before native plant propogules spring into action. In West Otter Lake Eurasian watermilfoil tends to densely colonize limited areas of the lake. Fifteen acres of littoral zone were selected for treatment based on the presence of significant Eurasian watermilfoil. On May 15, 2006 during windy conditions (NNW 18-25mph) 1500 pounds of 2-4-D were applied to these areas (see figure 1). The water temperature was 15.6 degrees C. shoreline at the south end of the lake was also treated with Aquathol K contact herbicide to control Curlyleaf pondweed on May 31, 2006. The air temperature was 78 degrees with a light southwest wind. The water temperature was not measured. Both treatments were consistent with the West Otter Lake Plant Management Plan. Both treatments had good results with little regrowth evident during the post treatment Residents did indicate milfoil regrowth occurred after the August plant surveys. This was an improvement over the 2005 season when regrowth was dense in some areas well before the end of the season.

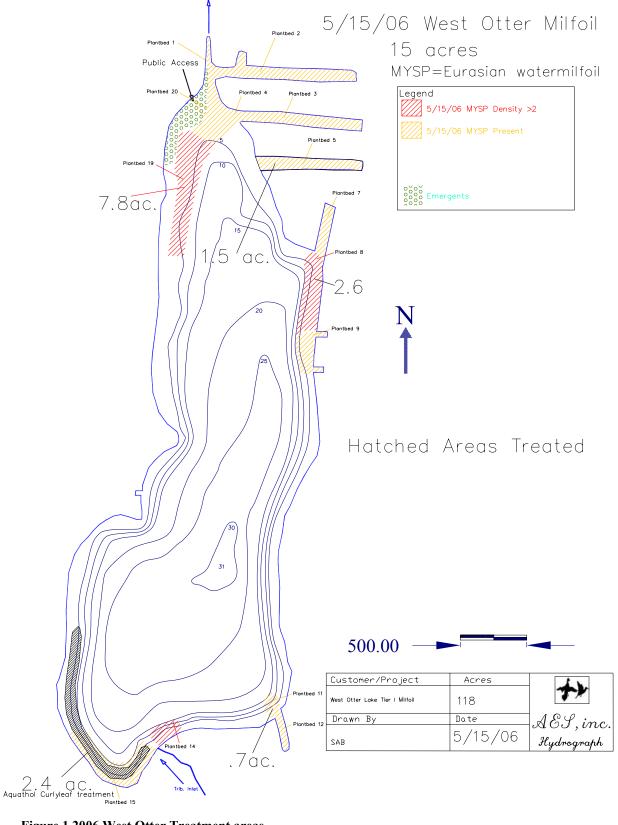


Figure 1 2006 West Otter Treatment areas

8.0 Aquatic Plant Community Characterization

8.1 Methods

Plant sampling in 2006 included a Tier I survey on 5/15/06 and again on 8/4/06 utilizing the same sampling protocol as in the original Plant Management Plan. For details see: *Aquatic Plant Management Plan, West Otter Lake, Steuben County, Indiana* (Aquatic Enhancement & Survey, Inc. 2005) A single Tier II survey was performed on 8/14/06. The tier II protocol was modified over the original protocol used in the Plant Management Plan by redesignating rake-toss sampling effort according to lake trophic status (mesotrophic for West Otter) combined with lake size (118 acres) rather than lake size alone. In addition, sampling was performed in a depth-stratified manner with a specified number of samples collected in depth contour categories according to the following table:

		Hypere	utrophic]	Eutrophic			Mesotrophic				Oligotrophic					
Lake Acres	Total # of Sites	0-5 foot contour	5-10 foot contour	0-5 foot contour	5-10 foot contour	10-15 foot contour	0-5 foot contour	5-10 foot contour	10-15 foot contour	15-20 foot contour	0-5 foot contour	5-10 foot contour	10-15 foot contour	15-20 foot contour	20-25 foot contour		
<10	20	10	10	10	7	3	10	5	3	2	10	4	3	2	1		
10-49	30	20	10	10	10	10	10	10	7	3	10	10	5	3	2		
50-99	40	30	10	17	13	10	10	10	10	10	10	10	10	7	3		
100-199	50	40	10	23	17	10	14	14	12	10	10	10	10	10	10		
200-299	60	50	10	30	20	10	18	16	16	10	14	12	12	12	10		
300-399	70	60	10	37	23	10	22	20	18	10	17	15	14	14	10		
400-499	80	70	10	43	27	10	25	23	22	10	19	18	17	16	10		
500-799	90	80	10	50	30	10	29	27	24	10	22	21	19	18	10		
>=800	100	90	10	57	33	10	33	31	26	10	25	23	22	20	10		

Table 1 Tier II Sample size requirements as determined by lake size, trophic state, and apportioned by depth class (source IDNR)

8.2 Results

8.2.1 Tier I

For the May 15 and August 4 Tier I plant surveys 20 areas of West Otter Lake's littoral zone were designated as Plantbeds based on their relative homogeneity of biological and physical characteristics. (See figure 2) These same plantbed boundaries were also utilized in a second Tier I survey on August 4. Substrate, size, and submersed plant species abundance data for the two surveys is displayed in tables 3 and 4 below. Table 2 below contains the complete list of species collected from West Otter Lake to date. No voucher specimens were collected from West Otter Lake during the 2006 season surveys. A short description of each plantbed is provided below.

Plantbed 1. Plantbed one is essentially the lake's outlet channel. It is .39 acres in size. Its substrate is sand with silt. Five species of submersed plant were present during the May survey and three species during the August survey. Algae was also present during both. This plantbed contained Eurasian watermilfoil during both surveys.

Plantbed 2. This plantbed is a silt-with-sand bottomed excavated channel 2.41 acres in size. A large amount of organic sediments is present. During May seven submersed

- plant species were noted here. In August six were noted. Eurasian milfoil was present in May but had not returned after the treatment of this area. Algae was present during both surveys.
- Plantbed 3. This plantbed is also an excavated channel with a silt-with-sand bottom. It is 1.81 acres in size and contains a large amount of organic sediment. This channel is quite shallow and barely navigable in the summer months. It is dominated by Elodea. Five species were present during the May survey with five present during August. Algae was also present during May. Some Eurasian watermilfoil was noted during both surveys.
- Plantbed 4. Plantbed four is a .24 acre area near the mouth of plantbed 3. It has a silt-with-sand bottom. Eight plant species were present during May and nine were present during August. Eurasian watermilfoil was present during both surveys.
- Plantbed 5. Plantbed five is a 1.57 acre excavated channel. It has a silt and sand bottom with a large amount of organic sediments present. Four plant species were noted during May and nine were noted during August. Eurasian watermilfoil was present during both surveys.
- Plantbed 6. Plantbed six is a 1.28 acre shoreline area. It has a silt and sand bottom. Three submersed aquatic plant species were noted in this area in May and four in August. Eurasian watermilfoil was not present.
- Plantbed 7. Plantbed seven is a .72 acre excavated channel. It has a silt and sand bottom. Ten plant species were noted in this plantbed in May and seven in August. Eurasian watermilfoil was noted during both surveys. During May this plantbed was dominated by Variable watermilfoil.
- Plantbed 8. Plantbed eight is a 1.89 acre shoreline area. It has a silt and sand bottom. Seven submersed plant species were noted in this plantbed during May while only three were noted during August. Eurasian milfoil was only noted during May.
- Plantbed 9. Plantbed nine is a 1.68 acre shoreline area and also includes a small excavated channel. It has a silt and sand bottom. Six submersed plant species were noted in this plantbed in May and five were noted in August. Eurasian watermilfoil was only noted during August.
- Plantbed 10. Plantbed 10 is a small (.33 acre) silt and sand bottomed shoreline area. Only two plant species were noted in plantbed ten during each survey. Eurasian watermilfoil was only noted during May.
- Plantbed 11. Plantbed 11 is a .4 acre area outside the mouth of a small excavated channel. It has a silt and sand bottom. Seven submersed plant species were noted in this plantbed in May and four in August. Eurasian watermilfoil was noted only in May and apparently did not return after treatment.

- Plantbed 12. Plantbed 12 is a .41 acre excavated channel. It has a silt and sand bottom with organic sediment present. Six species of submersed aquatic plant were present in May and four in August. Eurasian milfoil was present during both surveys.
- Plantbed 13. Plantbed 13 is a 1.07 acre shoreline area. It has a silt and sand bottom. Four species of submersed plant were present in this area in May and five in August. Eurasian watermilfoil was only present during August.
- Plantbed 14. Plantbed 14 is a .65 acre shoreline area adjacent to he lakes tributary inlet. It has a silt and sand bottom. Four plant species were present during the May survey, including Eurasian watermilfoil. Three species were present during August. Eurasian watermilfoil did not appear to have returned to this area after treatment.
- Plantbed 15. Plantbed 15 is a long (4.27 acre shoreline area). It has a silt and sand bottom. Being near the lake's tributary inlet it is typically a problem area for excessive plant growth. Eight submersed plant species were present during the May survey including Eurasian watermilfoil. Six were present in August. Eurasian watermilfoil was not noted in August and apparently did not return after treatment.
- Plantbed 16. Plantbed 16 is a long (5.25 acre) shoreline area. It has a silt and sand bottom. Four plant species were present in this area during May while ten were present during August. Eurasian watermilfoil was only found in this area during August.
- Plantbed 17. Plantbed 17 is a 2.10 acre shoreline area and also includes a small excavated channel. It has a silt and sand bottom. Five submersed species were noted in this plantbed in May and three in August. Eurasian watermilfoil was not observed in this plantbed during the Tier I surveys.
- Plantbed 18. Plantbed 18 is a 6.28 acre shoreline area. It has a silt and sand bottom. Six species were noted in this plantbed in May and Eight in August. Eurasian watermilfoil was only noted during the August survey.
- Plantbed 19. Plantbed 19 8.38 acres in size and includes a shoreline area and offshore flat. It has a silt and sand bottom. This area has exhibited thick Eurasian watermilfoil growth in the past. Five submersed plant species were noted in this plantbed in May and three in August. Eurasian watermilfoil declined from a visual abundance score of three in the May survey to a score of one in August. Presumably in response to treatment.
- Plantbed 20. Plantbed 20 includes the 2.46 acres in front of the IDNR public access site. It has a silt and sand bottom and is traditionally the worst area in terms of dense Eurasian watermilfoil growth. Seven submersed plant species were observed in this plantbed in May while Eight were noted in August. Eurasian milfoil abundance declined in response to treatment from a score of two in May to a score of one during the August survey.

Table 2 Common, scientific names, and species codes for submersed plants collected from West Otter Lake since 2004.

Common Name(s)	Scientific Name	Species Code	Nativity Native/Introduced	Indiana Status (Rare/Threatened/Endangered)
Variable watermilfoil	Myriophyllum heterophyllum	MYHE	N	
Variable pondweed	Potamogeton gramineus	POGR	N	
Chara, Muskgrass, Stonewort	Chara sp.	CH?AR	N	
Flatstem pondweed	Potamogeton zosteriformis	POZO	N	
Whitestem pondweed	Potamogeton praelongus	POPR5	N	Threatened
Eurasian watermilfoil	Myriophyllum spicatum	*MYSP2	I	
Richardson's pondweed	Potamogeton richardsonii	PORI	N	Rare
Illinois pondweed	Potamogeton illinoensis	POIL	N	
Curlyleaf pondweed	Potamogeton crispus	*POCR3	I	
Sago pondweed	Potamogeton pectinatus	POPE6	N	
Elodea, Common waterweed	Elodea canidensis	ELCA	N	
Horned pondweed	Zannichellia palustris	ZAPA	N	
Largeleaf pondweed	Potamogeton amplifolius	POAM	N	
Red-veined pondweed	Potamogeton X undulates Wolfg	POUN	Hybrid of Introduced & Native species	Only known N. American Occurrence. (found in 2005 only)
Small pondweed	Potamogeton pusillus	POPU	N	
Coontail	Ceratophyllum demersum	CEDE	N	
Great bladderwort, Common bladderwort	Utricularia vulgaris	UTMA	N	
Floatingleaf pondweed	Potamogeton natans	PONA	N	
Water stargrass	Zosterella dubia, Heteranthera dubia	ZODU/HE DU	N	
Needle rush (submersed)	Eleocharis acicularis	ELAC	N	
Filamentous algae	Any species	ALGA	N	
Southern naiad	Najas guadalupensis	NAGU	N	
Common naiad, Slender naiad	Najas flexilis	NAFL	N	
Spiny naiad	Najas marina	NAMA		

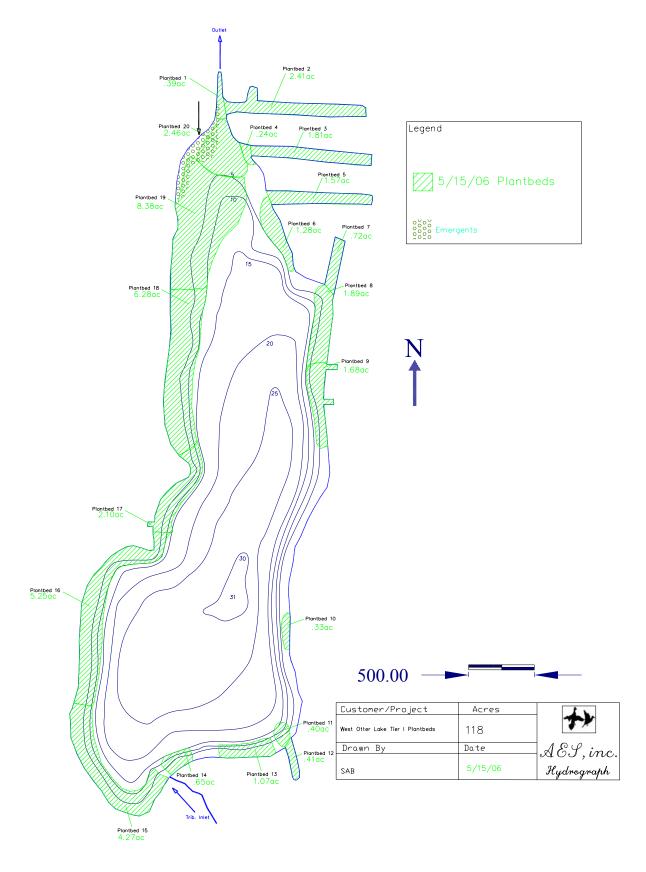


Figure 2 2006 Tier I Plantbeds for West Otter Lake

Scores are assigned according to the following table: Species Abundance or Canopy

1=< 2%

2 = 2 - 20%

3= 21-60%

4=> 60%

5/15/06 Tier I sampling results: (submersed plants)

Abundances

3/13/00 Tier I sampling		(Tourn									_
Plantbed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Size (Acres)	.39	2.41	1.81	.24	1.57	1.28	.17	1.89	1.68	.33	.40	.41	1.07	.65	4.27	5.25	2.10	6
Substrate	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Marl Present?																		
High Organic in Sediments?		1	1		1		1					1						
S Canopy	2																	
N Canopy																		
F Canopy																		
E Canopy		1	1	1		1	1	1		3			1		1			
Plant Species																		
Chara Chara sp.		3	1	3	1			2	3	1	3	4		3	2	3	4	
• Eurasian watermilfoil Myriophyllum spicatum	2	2	1	2	1		2	3		2	2	2		3	2			
Variable watermilfoil, Myriophyllum heterophyllum		2	1	2	1	1	4	2	3		2	2	1	1	2	2	3	
Illinois pondweed Potamogeton illinoensis						1	2	1	2		2		1		1	1	2	L
• Curly-leaf pondweed Potamogeton crispus	4	3		2	4	2	3	3	2		2	1	1	3	2	1	2	Ш
Algae	2	2	1				2								1			
*Whitestem pondweed Potamogeton praelongus				2				3	1		1		2					
Great bladderwort Utricularia vulgaris	1																	
Slender naiad Najas flexilis							2											
Sago pondweed Stuckenia pectinata	2						2											
Elodea, Elodea canadensis	2	2	4	3			2				2				2			
Flatstem pondweed Potamogeton zosteriformus		2	2	2			2				1	1	1		1		1	
Large-leaved pondweed Potamogeton amplifolius																		
Spiny naiad Najas marina																		
Variable pondweed Potamogeton gramineus																		
Eelgrass/Tapegrass Vallisneria americana																		
Coontail Ceratophyllum echinatum		2		1			2					1			1			
Horned pondweed Zannichellia palustris							2	2										
Needle Rush									2									
<u> </u>																		
<u> </u>																		

Table 3 5/15/06 Tier I plant survey data for West Otter Lake

• Non-native *RTE species

Scores are assigned according to the following table: Species Abundance or Canopy 1=< 2%

2= 2-20%

3= 21-60% 4=> 60%

Tier I sampling results: (submersed plants) Abundances

Tier I sampling results: (suome	JI SCU	piants					710	umau	11005										
Plantbed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Size (Acres)	.39	2.41	1.81	.24	1.57	1.28	.17	1.89	1.68	.33	.40	.41	1.07	.65	4.27	5.25	2.10	6.28	8.38
Substrate	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Marl Present?										1	1		1	1	1		1	1	
High Organic in Sediments?		1	1		1		1					1							
S Canopy	2				1		1										1		
N Canopy																			
F Canopy																			
E Canopy	3		1	1	2	1	1	2	1	3			2	1	1	1	3	3	3
Plant Species																			
Chara Chara sp.		2		3	2	2	1	2		3	3	4	2	2	2	3	3	3	2
• Eurasian watermilfoil Myriophyllum spicatum	2		1	1	3		1		1		2	2				1		1	1
Variable watermilfoil, Myriophyllum heterophyllum					2	2			2				1			2	2	1	
Illinois pondweed Potamogeton illinoensis							1					1	1					1	
Curly-leaf pondweed Potamogeton crispus		1	1		1											1			
Algae	2	3			3		2								1	1		1	
*Whitestem pondweed Potamogeton praelongus					1														
Great bladderwort Utricularia vulgaris		2		1	3		2											1	
Slender naiad Najas flexilis			3	3	3	2	2				1				2	1		2	
Sago pondweed Stuckenia pectinata		1		3		2		1	3	2	3	2	2	2	2	2	2	2	2
Elodea, Elodea canadensis	2	3	4	2	2		1				1				1				
Flatstem pondweed Potamogeton zosteriformus																			
Large-leaved pondweed Potamogeton amplifolius																			
Spiny naiad Najas marina									1										
Variable pondweed Potamogeton gramineus				1				2	1				1			1			
Eelgrass/Tapegrass Vallisneria americana																			
Coontail Ceratophyllum echinatum	3	3	2	2	3		3							2	2	2			
Horned pondweed Zannichellia palustris																			
Needle Rush																			
Richardson's pondweed Potamogeton richardsonii				2															
Water stargrass Heteranthera dubia															1	2		3	
Small pondweed Potamogeton pusillus																1			

Table 4 8/4/06 Tier I Plant data for West Otter Lake

• Non-native *RTE species

Descriptor	Post- Treatmen t West Otter Lake 8/30/04	Pre- treatment West Otter Lake 5/31/05	Post- Treatment West Otter Lake 8/19/05	Post- Treatmen t West Otter Lake 8/4/06	range for 21 other Indiana lakes	mean for 21 other Indiana lakes
# Sampling sites	59	61	59	50		
Total number of	12	12	12	11	1 to 17	8

species						
Total number of native species	10	10	9	9	1 to 16	7
Mean number of species per site	1.73	1.26	1.93	1.22	.38 to 2.66	1.61
Species diversity index (SDI), 0-1 scale,	.88	0.87	0.88	.86	0.0 to .91	0.66
Aquatic Vegetation % Frequency of Occurrence	93.2	60.66	96.61	64	n/d	n/d
Mean rake density	3	1.56	3	n/d	1.8 to 4.7	3.3

Table 5 2004, 2005 and 2006 Tier II Data for West Otter Lake

8.2.2 Tier II

Tier II plant sampling was conducted on August 4th, 2006. Rake tosses were performed at 50 random stratified sampling sites per INDR Tier II Protocol.(IDNR 2006) Sampling site coordinates were recorded on a WAAS enabled hand-held GPS unit, converted to Autocad® coordinates, and mapped on a contour map of West Otter Lake. (Figure 3) Statistical plant community descriptors for the 2005 and 2006 seasons are listed in the table above. (Table 5) These descriptors were based on the descriptor set from (Pearson 2004). For comparison, the range and mean of descriptors from a set of 21 other Indiana lakes (Pearson 2004) are listed in the table. Maps showing rake scores and collection locations for the three most abundant species; Chara, Slender naiad, and Variable pondweed are also provided. (Figures 4, 5, 6 respectively) Plant growth occurred to a depth of 14 feet in 2006, 16 feet 2005, and 11 feet in 2004 so sampling to the 20 foot contour was reasonably well suited to the conditions at West Otter.

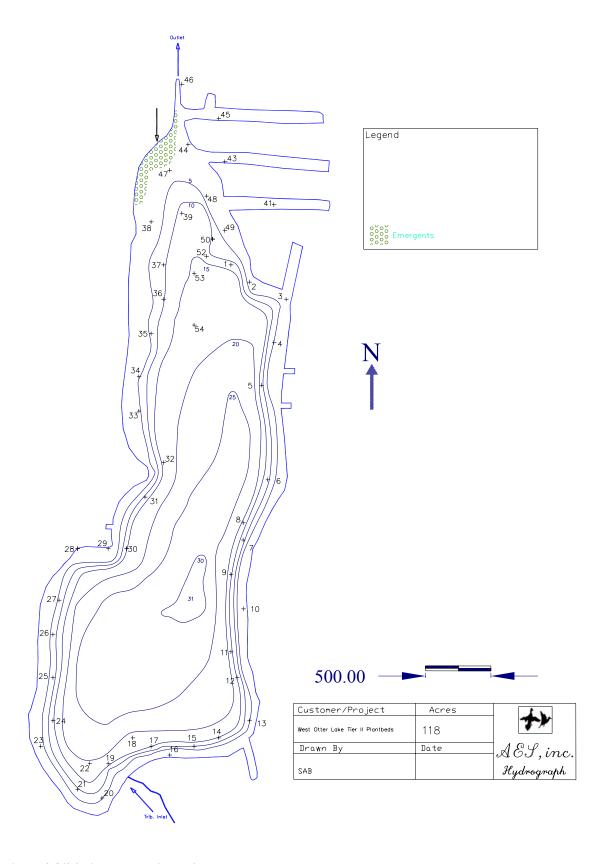


Figure 3 8/06 Tier II sampling points

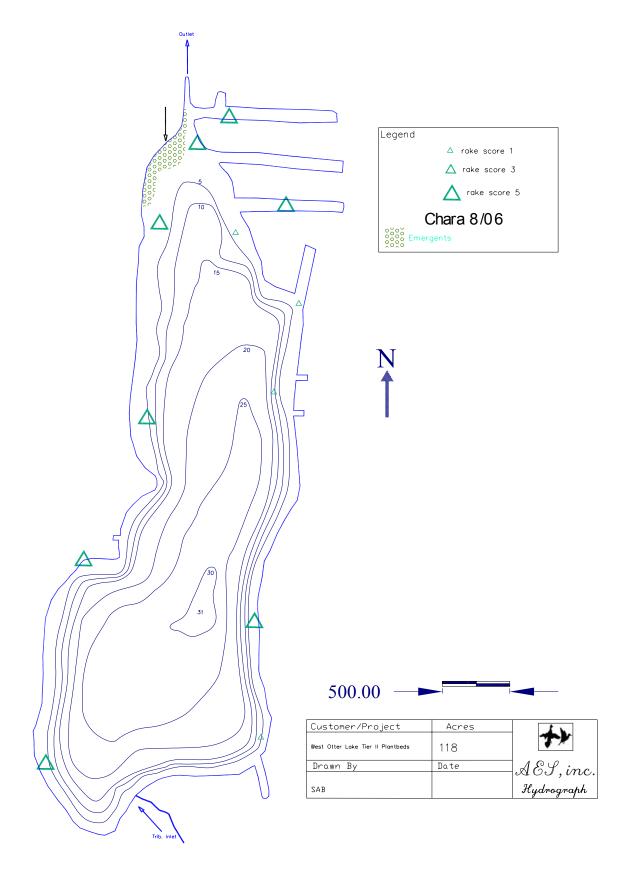


Figure 4 8/06 Tier II Chara Map

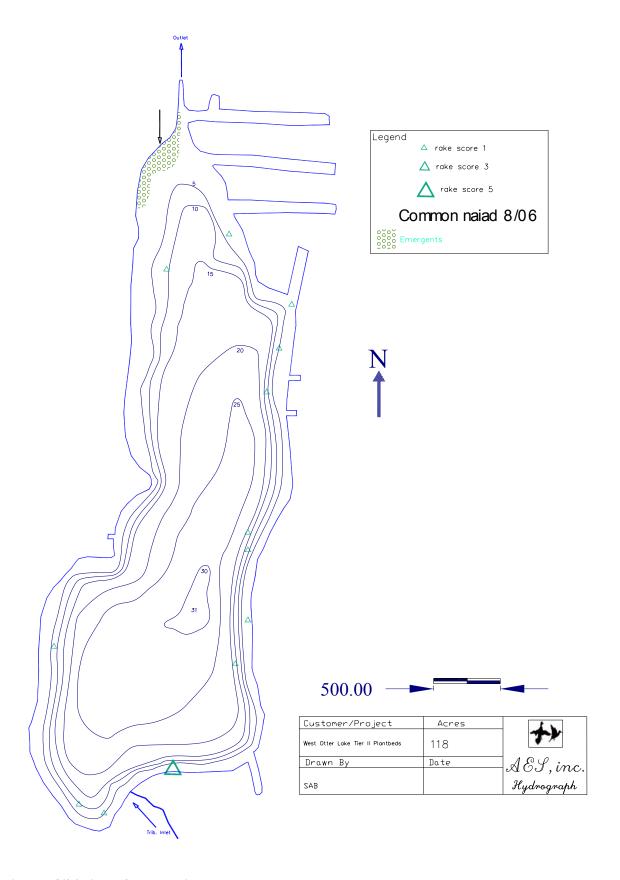


Figure 5 8/06 Tier II Slender naiad map

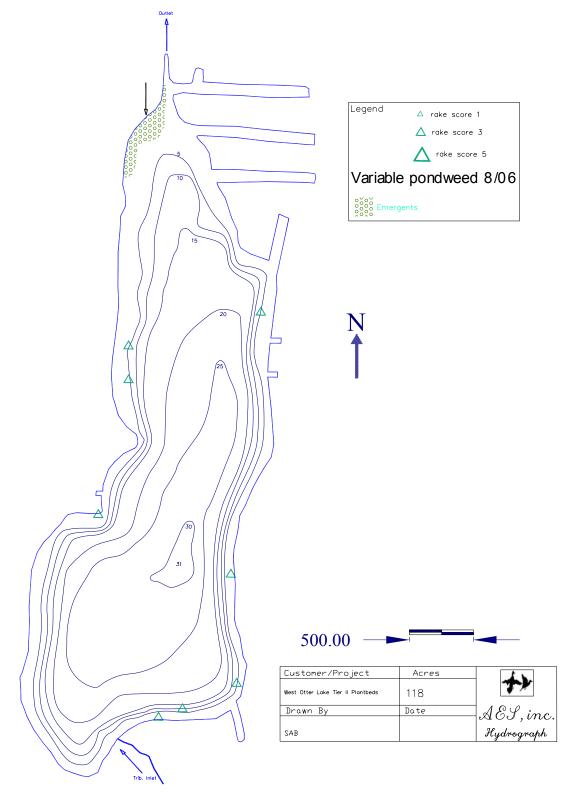


Figure 6 8/06 Variable pondweed map

		occurrence (# of			
Species C	odes	sites)	% of sites	mean density	relative density
CH,	Chara	13	26.00%	3.6	0.94
MYSP	Eurasian watermilfoil	1	2.00%	1	0.02
POIL	Illinois pondweed	2	4.00%	2	0.08
CEDE	Coontail	8	16.00%	2.5	0.4
MYHE	Variable watermilfoil	5	10.00%	3	0.3
UTMA	Great bladderwort	1	2.00%	1	0.02
NAFL	Slender naiad (common naiad)	13	26.00%	1.3	0.34
NAMA	Spiny naiad	2	4.00%	1	0.04
ELCA	Elodea	5	10.00%	3	0.3
POPE	Sago pondweed	3	6.00%	1.7	0.1
POGR	Variable pondweed	8	16.00%	1.5	0.24

Table 6 Species specific Tier II data for West Otter Lake 8/06

8.3 Macrophyte Inventory Discussion

West Otter Lake is above average in terms of species diversity when compared with other Indiana lakes. Eleven species were collected in 2006 compared to a mean of 8 for the set of 21 lakes and a maximum of 17. Nine native species were collected compared to an average of seven and maximum of 16 for the set of 21 lakes. The mean number of species-per-site however was only 1.22 compared to a 21 lake mean of 1.61 and 21 lake maximum of 2.66. The species diversity index score for the 8/06 sampling was .86 compared to a 21 lake mean of .66 and a 21 lake maximum of .91. recovered at 64% of all sampling sites. Chara and Slender naiad were the most abundant plants, both being collected at 26% of sampling sites. Coontail and Variable pondweed were second most abundant, both being collected at 16% of sampling sites. Eurasian watermilfoil was only present at 2% of sampling sites. Overall post-treatment West Otter Lake Exhibited a solidly native beneficial plant community in 2006. of benefit to the lake in terms of both recreational viability and wildlife habitat. Continuing a program of Eurasian watermilfoil control should be beneficial in maintaining this status. Keeping the occurrence of Eurasian watermilfoil at or below 5% of sampling sites (under the current Tier II protocol) is probably a reasonable goal for West Otter Lake's control program in 2007 if a two-treatment regime is incorporated. If only one treatment is used this may be exceeded. A nearly identical 2, 4-D treatment in the previous year (2005) only held the August occurrence to eight percent, but the 2005 sampling regime probably led to a slightly higher occurrence in that year.

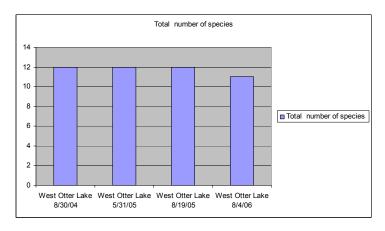


Figure 7 Tier II total number of species 2004-2006

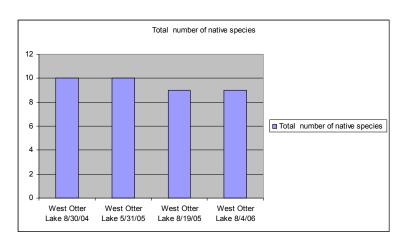


Figure 8 Tier II number of native species 2004-2006

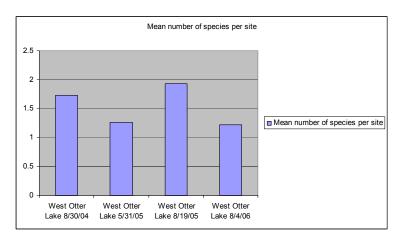


Figure 9 Tier II mean number of species per site 2004-2006

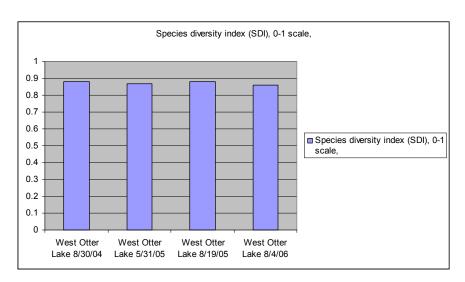


Figure 10 Species diversity index 2004-2006

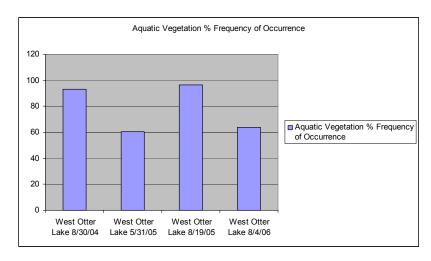


Figure 11 Aquatic vegetation % frequency of occurrence 2004-2006

Table 7 Frequency of occurence by species 2004-2006

Plant species frequency of occurrence	August 2004	May 2005	August 2005	August 2006
Variable watermilfoil	20%	15%	10%	10%
Variable pondweed				16%
Chara, Muskgrass, Stonewort	27%	28%	44%	26%
Flatstem pondweed				
Whitestem pondweed		5%		
Eurasian watermilfoil	15%	7%	8%	2%
Richardson's pondweed				
Illinois pondweed	17%	5%	19%	4%
Curlyleaf pondweed		23%	8%	
Sago pondweed		11%	22%	6%
Elodea, Common waterweed	14%	8%	3%	10%
Horned pondweed		5%		
Largeleaf pondweed				
Red-veined pondweed				
Small pondweed			15%	
Coontail	31%	11%	10%	16%
Great bladderwort, Common bladderwort	2%	2%	5%	2%
Floatingleaf pondweed				
Water stargrass				
Needle rush (submersed)				
Filamentous algae	17%			
Southern naiad	5%			
Common naiad, Slender naiad	5%	7%	22%	26%
Spiny naiad	3%			4%

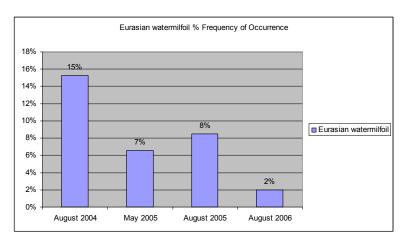


Figure 12 Eurasian watermilfoil frequency of occurrence 2004-2006

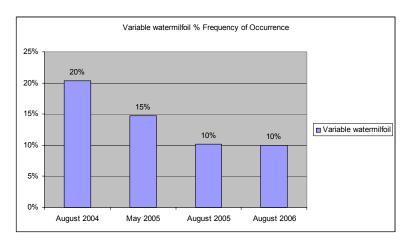


Figure 13 Variable watermilfoil frequency of occurrence 2004-2006

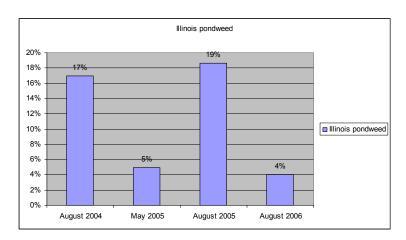


Figure 14 Illinois pondweed frequency of occurrence 2004-2006

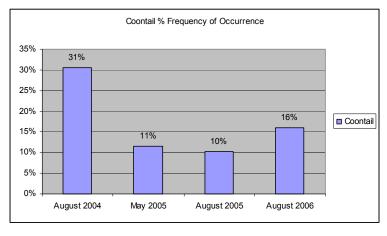


Figure 15 Coontail frequency of occurrence 2004-2006

(submersed species only, fil. algae excluded) **Descriptor**

Sampling sites	14
Total number of species	9
Total number of native species	9
Mean number of species per site	2.29
Species diversity index (SDI), 0-1 scale,	0.82
Aquatic Vegetation % Frequency of	
Occurrence	100.00

Table 8 Plant community descriptors for the 0-5.9 foot contour

Depth Contour (ft) 0-5.9

	#	0/ =:4==	man dans!t.	relative density
Common Name(s)	sites	% sites	mean density	relative density
Eurasian watermilfoil		0.5.54	4.40	0.50
Variable pondweed	5	35.71	1.40	0.50
Chara	9	64.29	3.89	2.50
Flatstem pondweed				
Whitestem pondweed				
Vallisneria, Tapegrass				
Illinois pondweed	1	7.14	3.00	0.21
Curlyleaf pondweed				
Sago pondweed	2	14.29	2.00	0.29
		04.40	0.07	0.70
Elodea, Common waterweed	3	21.43	3.67	0.79
Horned pondweed				
Largeleaf pondweed				
Variable watermilfoil	1	7.14	1.00	0.07
Small pondweed				
Robbins pondweed				
Coontail	3	21.43	2.33	0.50
Great bladderwort				
Floatingleaf pondweed				
Water stargrass				
Common Duckweed				
Needle rush (submersed)				
Arrowhead (submersed)				
Filamentous algae				
White water buttercup				
Common naiad	7	50.00	1.57	0.79
Spiny naiad	1	7.14	1.00	0.07

Table 9 Species descriptors for the 0-5.9 foot contour

(submersed species only, fil. algae excluded)

Descriptor

Sampling sites	14
Total number of species	11
Total number of native species	10
Mean number of species per site	1.43
Species diversity index (SDI), 0-1 scale,	0.88
Aquatic Vegetation % Frequency of	
Occurrence	78.57

Table 10 Plant community descriptors for the 6-10.9 foot contour

Depth Contour (ft) 6-10.9

	#					
Common Name(s)	sites	% sites	mean density	relative density		
Eurasian watermilfoil	1	7.14	1.00	0.07		
Variable pondweed	3	21.43	1.67	0.36		
Chara	3	21.43	3.67	0.79		
Flatstem pondweed						
Whitestem pondweed						
Vallisneria, Tapegrass						
Illinois pondweed	1	7.14	1.00	0.07		
Curlyleaf pondweed						
Sago pondweed	1	7.14	1.00	0.07		
Elodea, Common waterweed	1	7.14	3.00	0.21		
Horned pondweed						
Largeleaf pondweed						
Variable watermilfoil	1	7.14	5.00	0.36		
Small pondweed						
Robbins pondweed						
Coontail	3	21.43	2.33	0.50		
Great bladderwort	1	7.14	1.00	0.07		
Floatingleaf pondweed						
Water stargrass						
Common Duckweed						
Needle rush (submersed)						
Arrowhead (submersed)						
Filamentous algae						
White water buttercup						
Common naiad	4	28.57	1.00	0.29		
Spiny naiad	1	7.14	1.00	0.07		

Table 11 Species descriptors for the 6-10.9 foot contour

Contour (ft)
11-15.9

(submersed species only, fil. algae excluded)

Descriptor

Sampling sites

Total number of species

Total number of native species

Mean number of species per site

Species diversity index (SDI), 0-1 scale,
Aquatic Vegetation % Frequency of
Occurance

12

11

0.75

9

0.77

58.33

Table 12 Plant community descriptors for the 11-15.9 foot contour

Depth Contour (ft) 15.9

Common Name(s)	# sites	% sites	mean density	relative density
Eurasian watermilfoil				
Variable pondweed				
Chara	1	8.33	1.00	0.08
Flatstem pondweed				
Whitestem pondweed				
Vallisneria, Tapegrass				
Illinois pondweed				
Curlyleaf pondweed				
Sago pondweed				
Elodea, Common waterweed	1	8.33	1.00	0.08
Horned pondweed				
Largeleaf pondweed				
Variable watermilfoil	3	25.00	3.00	0.75
Small pondweed				
Robbins pondweed				
Coontail	2	16.67	3.00	0.50
Great bladderwort				
Floatingleaf pondweed				
Water stargrass				
Common Duckweed				
Needle rush (submersed)				
Arrowhead (submersed)				
Filamentous algae				
White water buttercup				
Common naiad	2	16.67	1.00	0.17
Spiny naiad				

Table 13 Species descriptors for the 11-15.9 foot contour

9.0 Aquatic Vegetation Management Alternatives

No new applicable plant management alternatives are available at this time. New alternative selective herbicides may be released to the market and prove efficacious in the near future and will be evaluated for use on West Otter Lake at that time.

10.0 Public Involvement

Two public meetings for discussion of plant management at West Otter Lake were incorporated into regular association meetings. These took place on 6/3/06 and 9/16/06. Information was presented by the association officers and Aquatic Enhancement & Survey, Inc. regarding plant management at the lake. A discussion was held about the status and goals of the West Otter Lake Plant Management Plan and opportunity was provided for residents and lake users to ask questions and provide input regarding the plant management and water-use restrictions involved. A Eurasian watermilfoil plant and Variable watermilfoil plant were passed around the room to improve the ability of lake residents to identify and recognize them. The Lake Use Survey below (fig. 16) was distributed to a group of about 60 in attendance at the June 3 meeting. 18 surveys were completed and returned. Results are tabulated in table 14 below. Resident concerns included notification of water use restrictions. Insuring clear preposting of treatment areas will give residents notice of water-use restrictions. Written comments on lake-user surveys included concerns about high aquatic plant populations preventing fishing in front of residences. Concerns over the filling of the lakes northwest channels with sediment and aquatic plants were strong, especially among property owners on the center channel. Residents expressed optimism over water clarity improving in response to the recent hook-up of lake residences to the Steuben Lakes Regional Waste District treatment plant. Some concern existed as to whether 100% of residents were connected to the system. Requests were made for advice on keeping individual shorelines and beaches clean. Other respondents indicated that they felt more speed enforcement was needed or that fish stocking could improve the lakes fishery. Overall those in attendance were supportive of continued efforts to control Eurasian watermilfoil, Curlyleaf pondweed and other problem aquatic plants at West Otter Lake.

	Lake Use Survey West Otter Lake 6/3/06
	Are you a lake property owner? Yes No
	2. Are you currently a member of your lake association? Yes X No
	3. How many years have you been at the lake? (circle one) 2 or less, 2 - 5 years 5-10 years Over 10 years
	4. How do you use the lake (mark all that apply) X Swimming X Irrigation (including lawn) X Boating Drinking water X Fishing Other water plants the
	5. Do you have aquatic plants at your shoreline in nuisance quantities? Yes _X_ No
	6. Does aquatic vegetation interfere with your use or enjoyment of the lake? Yes X
	7. Does the level of vegetation in the lake affect your property values? Yes No _X_
	8. Are you in favor of continuing efforts to control vegetation on the lake? Yes _\formu No
	 Are you aware that the LARE funds will only apply to work controlling invasive exotic species, and more work may need to be privately funded? Yes <u>≺</u> No
	10. Mark any of these you think are problems on your lake:
	Please add any comments:
	lots of weeds + ect. in front of my
	Trailor ymakes it very hard for my mother
C	grand-children to fish.
2	Diel help w/all of this if I can afford it! Thanks

Figure 16 West Otter Lake Users Survey

Lake Property Owner? Yes No						1	
Are you an association member? Yes No 19 19 Years at the lake? 2 or less two to five five for ten Over 10 19 How do you use the lake? Swan Irrigation Boating Fishing Other 13 5 18 12 How do you use the lake? 113 5 18 18 2 Do you have rusiance plants? Yes No 12 5 18 18 2 Do you have rusiance plants? Yes No Does vegetation interfere with your enjoyment of the lake wegetation affect Yes No Does the lake wegetation affect Yes No Are you in favor of continued Yes No Are you in favor of continued Yes No Are you aware that LABE funds will Yes No Mark other lake gooblems Too many plants Too many weeds, thanks for the help.	Lake Property Owner?	Yes	No				
19		19					
10							
190 190	Are you an association member?	Yes	No				
How do you use the lake? Swim Impation Boating Fishing Other		19					
How do you use the lake? Swim Impation Boating Fishing Other							
Mark other lake problems	Years at the lake?	2 or less	two to five	five to ten	Over 10		
13 5 16 18 2 Do you have nusiance plants? Yes No 12 5 16 18 2 Dos vegetation interfere with your enjoyment of the late 13 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		6	1	3	8		
13 5 16 18 2 Do you have nusiance plants? Yes No 12 5 16 18 2 Dos vegetation interfere with your enjoyment of the late 13 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
13 5 16 18 2	How do you use the lake?	Swim	Irrigation	Boating	Fishing	Other	
12 5	now do you doo no nano.	13	5	16	18	2	
12 5							
Does vegetation interfere with your enjoyment of the lake 13 3 3	Do you have nusiance plants?	Yes	No				
lake 18 No 13 3 3	be you have hadande plante.	12	5				
13 3 3 3 3 4 4 4 4 5 5 5 5 5 5							
Does the lake vegetation affect Yes No No Are you in favor of continued Yes No 17 Are you aware that LARE funds will only apply to exotics? Too many boats accessing Mark other lake problems Too many plants Too many weeds, thanks for the holp Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish	Does vegetation interfere with your enjoyment of the	Yes	No				
Does the lake vegetation affect Yes No Your property value? 14 3 Are you in favor of continued Yes No Yes No Are you aware that LARE funds will Yes No Are you aware that LARE funds will Yes No To many boats accessing And with other lake problems To many plants To many weds, thanks for the help Water quality should improve when sewer hookup is complete All the residents should have to hook to the sewer -Need more fish	idne	13	3				
your property value? 14 3		-					
your property value? 14 3	Described by the later was about the state of the state o	Yes	No				
Are you in favor of continued Yes No Vegetation control? 17 Are you aware that LARE funds will Only apply to exotics? 16 1 Too many boats accessing Fish population prob. Too many blants Canada Geese Dredging needed Too many plants Too many plants Too many plants Overuse by non-res Not enough plants Poor water quality Add any comments To many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish							
vegetation control? 17 Are you aware that LARE funds will only apply to exotics? 16 1 Too many boats accessing Are problems Too many plants Too many pla	your property value?						
vegetation control? 17 Are you aware that LARE funds will only apply to exotics? 16 1 Too many boats accessing Are problems Too many plants Too many pla		Yes	No				
Are you aware that LARE funds will Yes No only apply to exotics? 16 1 Too many boats accessing Prob. 6 11 Too much fishing Prob. Too much fishing Prob. Too much fishing Reese needed 11 Too many plants Overuse by non-resy non-resy non-resy non-resy non-resy roomater quality Add any comments -Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish							
only apply to exotics? 16 1 Too many boats accessing Fish population prob. 6 11 Too much fishing Geese Dredging needed 11 Too many plants Too many plants Too many plants Too many plants Poor water quality 14 1 Pler/Funneling problem Add any comments -Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish	vegetation control?	"					
only apply to exotics? Too many boats accessing							
only apply to exotics? Too many boats accessing							
only apply to exotics? Too many boats accessing		Von	No				
Mark other lake problems Too many boats accessing Fish population prob. 6 11 Too many plants Poor water quality 14 1 Pier/Funneling problem Too many weeds, thanks for the help -Vater quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish							
Mark other lake problems Too mark other lake problems Too much fishing Callada Geese Dietging needed	only apply to exotics?	16	1				
Mark other lake problems Too much fishing Callada Geese Geese Not enough plants			Fish				
Too many plants Overuse by non-res Not enough plants Poor water quality	Mark other lake problems	Too many boats accessing	population	Too much fishing		Dredging needed	
Add any comments Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish	The state of the s					11	
Add any comments Pier/Funneling problem -Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish		Too many plants		Not enough plants			
Add any comments -Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish						l .	
-Too many weeds, thanks for the help -Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish				Pier/Funneling			
-Water quality should improve when sewer hookup is complete -All the residents should have to hook to the sewer -Need more fish				problem			
-Need more fish	-Water quality should improve when sewer hookup is						
	-All the residents should have to hook to the sewer						
	-Need more speed control						

Table 14 West Otter Lake 2006 Lake user survey results

11.0 Public Education

Residents and users who have attended the meetings seemed to understand the need for controlling invasive plants. The issue of controlling Purple loosestrife and other invasive wetland plants has also been addressed at the meetings and these efforts should continue in 2007. It may be wise to stress the possibility of watercraft spreading aquatic plants or introducing new invasive plants to the lake. This will be especially important now that Hydrilla has been found in Indiana (see next section). The clear posting of invasive species information at the public accesses at West Otter Lake or a basic screening process for launching watercraft may be steps to consider in helping protect the lake's plant community.

11.1 Hydrilla and it's implications for West Otter Lake

Keeping lake residents and users aware of the possibility of bringing in new invasive species on watercraft trailers will be especially important now that Hydrilla has been found in Indiana. Hydrilla *Hydrilla verticillata* is an invasive submersed aquatic plant thought to be native to Africa, Australia, and parts of Asia. As a hearty growing plant Hydrilla was used in aquariums and this led to its introduction into Florida waters in 1960. Since then Hydrilla has spread to become the single most problematic plant in the United States. (See USGS map below) In Florida alone millions are spent in controlling the growth of Hydrilla each year. The potential exists for the same type of damage on

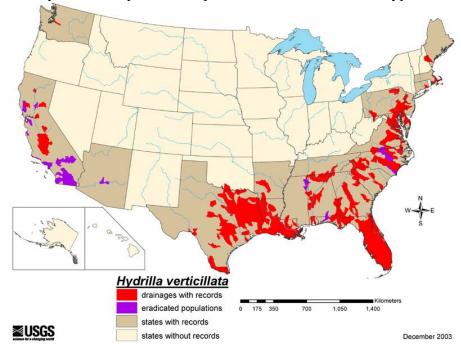


Figure 17 Known occurrences of Hydrilla in the U.S. in 2003. From the USGS website, http://nas.er.usgs.gov/taxgroup/plants/docs/hy verti.html

Indiana waterways if Hydrilla is allowed to spread. Like many invasive aquatic plants Hydrilla can form dense surface mats depriving native plant communities of light, decreasing plant community diversity and causing serious impairment of recreational activities including fishing, swimming, and boating.



Figure 18 Hydrilla mats clog the surface of Lake Conroe Texas. Photo courtesy of Earl Chilton, Texas Parks and Wildlife Department

Hydrilla can spread by fragmentation, or the production of seeds, tubers (root structures), or turions (seed-like plant buds). Because of the potential for spread through fragmentation, plant material hitching a ride on watercraft trailers is probably a major mechanism of introduction. Tubers and turions can be very hearty surviving dry periods or herbicide treatments and remaining hidden in the lake bottom for extended periods of time. Because of these characteristics great ecological damage and recreational impairment can occur in watersheds colonized by Hydrilla. In 2006 Hydrilla was discovered in Lake Manitou in Rochester Indiana (Fulton County). This is the first known occurrence of this plant in the Midwest. The Indiana Department of Natural Resources has devised a plan for eradicating and controlling the Hydrilla to prevent spread to other water bodies. Checks of other lakes in close proximity to Lake Manitou have not located any other Hydrilla, so it is possible that the plant is only in Lake Manitou at this time. However, it's also possible that other lakes contain young Hydrilla infestations that have yet to be recognized so it's important that associations and lake residents learn to identify this plant. Acting early in spotting Hydrilla can help prevent spread and ultimately save a huge cost to the ecology and recreational value of Indiana lakes. Other infestations could also undoubtedly occur as a result of plants being transported to Indiana from out-of-state. Whereas many Steuben County Lakes are popular boating and sportfishing destinations there is a definite possibility that this plant could appear in West Otter Lake in the future. Information on Hydrilla identification should be presented to the West Otter Lake users at meetings as a regular part of the lake resident educational program.



Figure 19 Hydrilla is similar in appearance to the native plant Elodea canadensis and also Brazilian elodea, an exotic also recently found in Indiana. It forms long stems containing many whorls of short leaves.

11.1.1 Hydrilla Identification

Hydrilla strongly resembles the native aquatic plant Elodea *Elodea canadensis* and the introduced species Brazilian elodea *Egeria Densa*. Both these species can be found in Indiana although the occurrence of Brazilian elodea has been very limited thus far. Native Elodea is a part of the West Otter Lake plant community. Hydrilla is a long slender plant that sometimes branches and has short leaves arranged around the stem in a star-like (whorled) pattern. Characteristics which differentiate Hydrilla from Elodea and Brazilian Elodea include a typical leaf count of five in the whorl. Brazillian elodea typically has four to six leaves but never three, and native Elodea usually has three. (fig 20) Small teeth are also present on the midrib of Hydrilla leaves and may give the plant a "rough" feel.

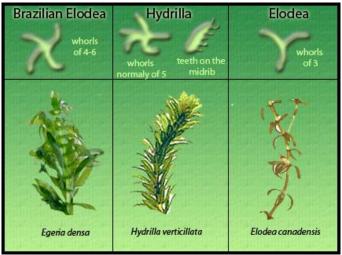


Figure 20 Brazilian elodea has a typical leaf count of 4-6, while Hydrilla's is usually 5, and Elodea's 3 Photo courtesy of Rob Nelson at ExploreBiodiversity.com

Hydrilla also has small serrations along the leaf edges (fig 21). Another distinguishing characteristic of Hydrilla is the presence of tubers (.2 to .4 inch long off-white structures attached to the root) (fig 22).



Figure 21 Edges of Hydrilla leaves have fine serrations visible upon close examination



Figure 22 Hydrilla plants with tubers attached

Anyone noting the presence of Hydrilla or Brazilian elodea is asked to immediately contact Doug Keller, Invasive species coordinator for the Indiana Department of Natural Resources at 317-234-3883, email: **dkeller@dnr.in.gov**. More information on stopping the spread of invasive aquatic species is available online at **http://www.protectyourwaters.net/**

12.0 Integrated Management Action Strategy

Based on the value of West Otter Lake as a unique public resource with two RTE species present in its plant community and the overwhelming desire by its users to continue to control the lake's Eurasian milfoil problem, it's recommended that the 2006 season's 15 acre 2,4-D application regime be repeated in 2007, but supplemented with repeated treatments of up to 15 acres in areas of returning Eurasian watermilfoil growth. Retreatment was not needed in 2006 but was in 2005. It is unknown why this disparity in treatment success occurred. Variations in treatment timing, plant life stage, or climatic conditions are all possibilities. In addition 2.5 acres of shoreline should be treated in April with Aquathol K aquatic herbicide to control excessive growth of Curlyleaf pondweed. This treatment should occur early enough to prevent turion formation. Monitoring and aquatic plant surveys per the 2007 IDNR protocol should be used to evaluate changes in the lake's plant community and treatment effectiveness. alleviate persistent problems with shoreline nuisance native aquatic plants in some areas the Association may wish to consider a regime of contact herbicide treatments in developed shoreline areas. Treatment timing should be planned so as not to interfere with the effectiveness of the systemic Eurasian milfoil treatment. At least one public meeting should be dedicated each season to helping educate the lake residents about proper practices in managing their own lakeside properties and allow for the collection of ideas and opinions from lake users and the general public. Because extensive colonization of West Otter Lake's watershed wetlands by Purple loosestrife has implications for water quality, a basic survey should be planned in 2007 to evaluate the colonization of the shoreline and riparian wetlands by Purple Loosestrife. Resident's should be reminded to take basic efforts to control these plants along their own shoreline. This survey should be designed to evaluate the feasibility of a lake-wide control program for this invasive plant.

13.0 Estimated Project Budget and Timeline

2007

- -April 2007 early treatment of 2.5 acres of Curlyleaf pondweed \$670.00
- -June 2007 hold public meeting to discuss plan with community and lake users \$200.00
- May 2007 Map Exotic Plants and Designate Treatment areas \$1000.00
- -Mid to late May 2007 2-4-D Eurasian watermilfoil treatment to designated areas maximum 15 acres \$6540.00
- -July 2007 Tier II Plant Survey, Designate any retreatment areas \$1000.00
- -June or July 2007 Marginal shoreline treatment of Purple loosestrife \$900.00
- -July 2007 2-4-D Eurasian watermilfoil treatment to designated areas of re-growth, maximum 15 acres \$6540.00
- -November 2007 AVMP document preparation \$900.00

2007 Total \$17,750.00

14.0 References Cited

Pearson, J. 2004, A sampling method to assess occurrence, abundance and distribution

of submersed aquatic plants in Indiana lakes, Indiana Department of Natural Resources, Division of Fish and Wildlife, Tri-Lakes Fisheries Station, 5570 North Hatchery Road Columbia City, Indiana 46725

IDNR 2004. Procedure manual for surveying aquatic vegetation: Tier I and Tier II, Indiana Department of Natural Resources, Indianapolis, Indiana.

15.0 Appendices

Appendix A Tier I Data Sheets 5/06

Tier 1	Aquatic Vegetation Reconnaissance Sampling
	Waterbody Cover Sheet
Surveying (Organization: AQUATIC ENHANCEMENT & SURVEY, INC.
Waterbody	Name: WEST OTTER LAKE Lake ID:
County:	STEUBEN Date: 5/15/06
Habitat Stra	Ave. Lake 17 Lake Level: Depth (ft):
Crew Leader:	GPS Metadata NAD 27 16 1/2 Im
Recorder:	Method: Datum: Zone: Accuracy:
Secchi Dept	th (ft): 6.9 Total # of Plant Beds Surveyed: 20 Total # of Species:
Littoral Zon	Estimated Littoral Zone Max. Depth (ft): Measured Measured Estimated (current Secchi)
Notable Cor	SEVERAL DAYS OF RAINFAU PRECEDED SURVEY, RAINFAU DURING SURVEY, WATER CLARNTY HAS SUFFERED. LAKE APPROX. 6" HIGH

Aquatic Ve	getation F	Plant B	led D	ata SI	neet	5	Joseph 1	CA / Pageof
	f Indiana Dep						echi (UV
ORGANIZATION:	AQUATIC	ENHAL	NCEME	ent &	SURVEY, 1	NC.	DATE: 5/1	5/06
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Substrate: 3	Wat	terbody ID:	Į.				Longitude:	
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	Overall Surfa N = Nonroote F = Floating. E = Emergen S = Submers	ed floating rooted nt	71	2	Abundano 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	ce:	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varified	SEC

Aquatic Vegetation Plant Bed Data Sheet State of Indiana Department of Natural Resources								Page of
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Aquatic Vege		n Plant B						Page of	
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6 = Sand	0 = abs	sent			Abundan	nce:	Voucher:		
	N = No F = Flo E = Em	I Surface Cove nrooted floating ating, rooted lergent bmersed			1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%		0 = Not Taken 1 = Taken, not varified 2 = Taken, varifiex		

LYSA NYTU SACU V 2	SITE COORDINATES Center of the Bed Latitude: Longitude: Max, Lakeward Extent of Bed		
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2 = Silt w/Sand 0 = absent 2 = 2-20%	1 = Species suspt letter to denote specific		
3 = Sand w/Sitl 3 = 21-60% 4 = Hard Clay High Organic 4 = > 60%	2 = Genus suspected location of a species; 3 = Unknown referenced on attached map		
5 = Gravel/Rock 1 = Present	v - original referenced on attached map		
6 = Sand 0 = absent	Monte		
Abundano Overall Surface Cover 1 = < 2%	ce: Voucher: 0 = Not Taken		
N = Nonrooted floating 2 = 2-20%	1 = Taken, not varified		
F = Floating, rooted 3 = 21-60%	1 = Taken, not varified 2 = Taken, varifier		
E = Emergent 4 = > 60% S = Submersed			

Aquatic Veg					Page of	
	ndiana Departm					
ORGANIZATION:	AQUATIC ENH	ANCEM	ent b	SURVEY, INC	. DATE: 5/15/06	
	and the second of the second o	FORMAT	TION		SITE COORDINATES	
Plant Bed ID:	Waterbody				Center of the Bed	
Bed Size:	WES	T OTH	ER LA	IKE	Latitude:	
Substrate: 7	Waterbody	D:			Longitude:	
Mari?	Total # of S	pecies			Max. Lakeward Extent of Bed	
High Organic?		Canop	yAbund	ance at Site	Latitude:	
	S:	N;		F: E.	Longitude:	
	SPECIES INFOR	RMATION		200 840 45 12 200 400 4	- SA-MARIAMANA A TATABAN SA	
Species Cod	le Abundan	ce QE	Vchr.	Ref. ID	Individual Plant Bed Survey	
CH ?AR	V 3				%	
M-YSP2	8					
MYHE	13					
POIL	12			ALCOHOL CATALOG	<u> </u>	
POCR 3	V 2				\ I	
ALGA)	
POPR 5	VI	T Breathing				
UTMA						
NAFL						
POPE 6						
MEEDLE PU	10H 2				Travel Patte	em:
NICEONZ ED	37 0-			50 - 48 - 505 - 500 C	Plant Bed ID # 01	
	88		al second			
	843					
Colore and Wilders and Williams			OLUM	C	omments:	
LYSA						
NYTU						
SACU			1			
ARUM	1 8					
NULU						
TYLA	17					
TYAN			SAR TO SE			
	NFORMATION			Charles Annie	925 State 2014 1925	
Substrate: 1 = Silf/Clay	Mari 1 = Present			Canopy: 1 = < 2%	QE Code: Reference ID: 0 = as defined Unique number or	
2 = Silt w/Sand	0 = absent			2 = 2-20%	1 = Species suspe letter to denote specific	
3 = Sand w/Sitt 4 = Hard Clay	High Organic			3 = 21-60% 4 = > 60%	2 = Genus suspected location of a species;	_
5 = Gravel/Rock	1 = Present			4-20074	3 = Unknown referenced on attached may	D
6 = Sand	0 = absent			88 18		
	Overall Surface Co	ver		Abundance: 1 = < 2%	Voucher: 0 = Not Taken	
	N = Nonrooted floatii			2 = 2-20%	1 = Taken, not varified	
	F = Floating, rooted	200		3 = 21-60%	2 = Taken, varified	
	E = Emergent S = Submersed		2	4 = > 60%		
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Aquatic Vegetat						Page of		
State of Indian					1725	1 -1-7		
ORGANIZATION: AQU	ATTIC ENHAL	ICEME	NT &	survey, in	VC.	DATE: 5/15/	06	
	SITE INFO		ION			SITE C	OORDINATES	
Plant Bed ID: 10	Waterbody Nar			,		Cente	er of the Bed	
Bed Size:	WEST	OTTE	R LA	KE		Latitude:		
Substrate. 2	Waterbody ID:					Longitude:		
Mart? O	Total # of Spec	ies		Company of the Co		Max. Lakeward Extent of Bed		
High Organic?		Canopy	Abunda	ance at Site		Latitude:		
-0.00	S:	N:		F:	E: 3	Longitude:		
SP	ECIES INFORM	ATION						
Species Code	Abundance	QE	Vehr.	Ref. ID]	Individual Plant	Bed Survey	
CH ?AR	3					^		
MYSP2						1		
MYHE ~	1	(-1=]		*]	
POIL V	13							
POCR 3						1		
ALGA		etiese)	(
POPR 5		The Internal	011					
UTMA						1	(1)	
NAFL				I TOTAL IN LESS ASS	1	1		
POPE 6	°E6				1	Carrie I	T Pollon	
			1		1	- July	Travel Pattern	
			100		1	Plant Bed ID # 01		
IRVIV	2				1			
WILLOW V	2	200			Carrie Handing			
SC 5P.	3	Server Co.			Comment	s:	75	
LYSA	え			-	NO	DEEP PLAN	n.S. Commi	
NYTU	1			14.7	RUS	H BEAD		
SACU					1			
ARUM					1			
NULU		-1/	1000		1			
TYLA	g-(crus) (1) (1)	1,5=2.11]			
TYAN								
REMINDER INFOR	Self-discount of the self-disc			Canomi		QE Code:	Reference ID:	
	Present			Canopy: 1 = < 2%		0 = as defined	Unique number or	
2 = Silt w/Sand 0 = a 3 = Sand w/Silt	bsent			2 = 2-20% 3 = 21-60%		1 = Species suspe 2 = Genus suspected	letter to denote specific location of a species;	
E. C. BERTSTEINSTEIN ALE OF	Organic			4 = > 60%		3 = Unknown	referenced on attached map	
TO BE THE SECOND SECURITY OF THE PARTY OF TH	resent							
6 = Sand 0 = a	bsent			Abundan	ce:	Voucher:		
Over	all Surface Cove	r		1 = < 2%		0 = Not Taken		
190.500	Nonrooted floating			2 = 2-20%		1 = Taken, not varified		
	loating, rooted mergent			3 = 21-60% 4 = > 60%		2 = Taken, varifier		
659 55	Submersed						95	
The second second				ALTONIA DES				

Aquatic Vege	tation Plant I diana Departme			Page of		
	I QUATIC ENHA				. DATE: 5/15/06	
	SITE INF				SITE COORDINATES	
Plant Bed ID:	Waterbody N				Center of the Bed	
Bed Size:	WEST	OTTE	R LA	KE		
Substrate 2	Waterbody III	- 250	- 550		Latitude:	
Mari?		•			Longitude:	
0	Total # of Spo	Aller Charles		. 0:4	Max, Lakeward Extent of Bed	
High Organic? ()	S:	N:	Adund	ance at Site	Latitude:	
	SPECIES INFORI	MATION			Longitude:	
Species Code			Vehr.	Ref. ID	Individual Plant Bed Survey	
CH ?AR	V 3	- GL	· Ciii.	Kei. ID	individual Fiant Bed Survey	
MYSP2	12				~	
MYHE	12					
POCR3 F	12					
ALGA		1) 1	
POPR5 L	- 1	N. Carlotte				
UTMA						
NAFL		+		S-1977 -		
POPE 6		-				
100 kg 2	- 1	A SECTION AND ADDRESS OF THE PARTY OF THE PA	8	- 5	Travel Pattern	
P070 4	2				Dissel Date (D. # 04	
DENE!				Constitute of	Plant Bed ID # 01	
7						
		-		_	omments:	
LYSA			S			
NYTU						
SACU		A COURSE				
ARUM			Ŷ.			
NULU			E STERRY	-		
TYLA						
TYAN				HAY LA AMES	A CONTRACTOR OF THE PARTY OF TH	
REMINDER IN				9		
1 = Silt/Clay 1 2 = Silt w/Sand 0 3 = Sand w/Silt 4 = Hard Clay F	Marl = Present = absent ligh Organic = Present			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 50%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspected letter to denote specific location of a species; 3 = Unknown referenced on attached map	
C N F E	= absent overall Surface Covi = Nonrooted floating = Floating, rooted = Emergent = Submersed		:	Abundan 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifies	

State of	ndiana Depar	tment of N	atural R	esources					
				SURVEY, INC.	DATE: 5/15	06			
	SITE	INFORMA	TION		SITE	SITE COORDINATES			
Plant Bed ID: 19)	ody Name:			Cen	Center of the Bed			
Bed Size:	W	EST OT	ER LA	KE	Latitude:				
Substrate: 2	Waterb	ody ID:	a Literature		Longitude:				
Marl? O	Total #	of Species			Max, Lake	ward Extent of Bed			
High Organic?	0 742	Canop	yAbund	ance at Site	Latitude:				
	S;	N:	1	F: E:	Longitude:				
	SPECIES IN	FORMATION	N						
Species Co	de Abun	dance QE	Vehr.	Ref. ID	Individual Plan	t Bed Survey			
CH ?AR	V	/			_				
MYSP2	V 2				(
MYHE	V 2								
POIL			S Hermon						
POCR 3	1		distriction	AND THE PROPERTY OF THE PARTY O	1	1			
ALGA)				
POPR 5	DECEMBER OF STREET								
UTMA	2 19 12 23				1	11			
NAFL			1						
POPE 6					(a)				
CENE	VI		- 9		- Vi	Travel Pattern			
POZA	v /				Plant Bed ID # 01				
(0									
	S S			Com	ments:				
LYSA				100 0000					
NYTU	11.								
SACU				1777					
ARUM									
NULU		0.000	77777						
TYLA									
TYAN									
REMINDER Substrate:	Mari Mari			Canopy:	QE Code:	Reference ID:			
1 = Silt/Clay 2 = Silt w/Sand	1 = Present			1 = < 2%	0 = as defined	Unique number or			
3 = Sand w/Silt	0 = absent	bsent		2 = 2-20% 3 = 21-80%	1 = Species suspr 2 = Genus suspected	letter to denote specific location of a species;			
t = Hard Clay 5 = Gravel/Rock	High Organic 1 = Present			4 = > 60%	3 = Unknown	referenced on attached map			
S = Sand	0 = absent								
	Overall Surface	Cover		Abundance: 1 = < 2%	Voucher: 0 = Not Taken				
	N = Nonrooted	loating		2 = 2-20%	1 = Taken, not varified 2 = Taken, varified				
	F = Floating, roo E = Emergent	ned		3 = 21-60% 4 = > 60%					

Aquatic Ve	getati	on Plant B	ed D	ata Si	neet	Page of
State o	f Indian	a Department	t of Na	atural R	esources	AN THE RESIDENCE
ORGANIZATION:	AQUA	TTC ENHAL	ICEMI	ent b	SURVEY, IN	C. DATE: 5/15/06
		SITE INFO		TION		SITE COORDINATES
Plant Bed ID: /	3	Waterbody Nar				Center of the Bed
Bed Size		WEST	OTH	ER LA	KE	Latitude
Substrate: 2		Waterbody ID:				Longitude:
Mart? O		Total # of Spec	ies			Max. Lakeward Extent of Bed
High Organic? O				yAbunda	ance at Site	. Latitude:
- 1000 C		S:	N:		F: E	
	SPE	CIES INFORM	ATION	2/2- 699		
Species C	ode	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
CH ?AR						
MYSP.	2					
MYHE	V	1				
POIL				on the second		<u>\</u>
POCR 3	V	1				1
ALGA) 1
POPR 5	-	2	O-Schines			
UTMA						
NAFL			,			
POPE 6		4500	-Tani Sir			
OH/Poil	-6-	71				Travel Pattern
DOZO	_	1	The second			Plant Bed ID # 01
1			inella:			
		-28000000000000000000000000000000000000			C	omments:
LYSA		0.00				,
NYTU	V	2				
SACU	6 50			S- 3/5	HILL SHIP CON	
ARUM						
NULU						
TYLA						
TYAN			(T-01)	-		
REMINDER Substrate:		MATION			3	
substrate: 1 = Silt/Clay	Mari 1 = Pre	esent			Canopy: = < 2%	QE Code: Reference ID: 0 = as defined Unique number or
2 = Silt w/Sand 3 = Sand w/Silt	ilt w/Sand 0 = absent 2 = 2-209			2	= 2-20%	1 = Species suspe letter to denote specific
4 = Hard Clay	High (rganic 3 = 21-80% 4 = > 60%			2 = Genus suspected location of a species; 3 = Unknown referenced on attached map	
= Gravel/Rock = Sand	1 = Pre 0 = abs					at the dispersion.
- 15 ml					Abundance	Voucher:
		If Surface Cover phrooted floating			= < 2%	0 = Not Taken
		aling, rooted			= 2-20% = 21-60%	1 = Taken, not varified 2 = Taken, varifier
		nergent bmersed		4	= > 60%	
	5 - 3U	unreiseu				38

Aquatic Vego State of I		on Plant Bo Department						Page of	
ORGANIZATION:	AQUA	TIC ENHAN	CEME	NT &	SURVEY, I	NC.	DATE: 5/15/	06	
		SITE INFO	war in the	ason for			SITE COORDINATES		
Plant Bed ID: 14	1	Waterbody Nam			All the same		Center of the Bed		
Bed Size:		WEST	OTTE	ER LA	KE		Latitude:		
Substrate: 2		Waterbody ID:					Longitude:		
Mari?		Total # of Speci	es				Max, Lakeward Extent of Bed		
High Organic?			anop	yAbund	ance at Site	•	Latitude:		
)		S:	N:		F:	E:	Longitude:		
	SPE	CIES INFORMA	ATION						
Species Cod	lo	Abundance	QE	Vehr.	Ref. ID		Individual Plant	Bed Survey	
CH ?AR	V	3	ļ.				_		
MYSP2	V	3		Se con			~		
MYHE	1			The state of				1	
POIL			E				5	1	
POCR 3	1	3					1		
ALGA			- PER)	1	
POPR 5			3			1			
UTMA					V	S	1		
NAFL							1	7112	
POPE 6							City	Tenuel Callera	
	-51111-	Hint Surveys	41.27	I management		3	Y	Travel Pattern	
						1	Plant Bed ID # 01		
1					1	1			
						1			
						Comment	ING THE		
LYSA	-					1400	THE S	THORE	
NYTU									
SACU									
ARUM									
NULU		8			Q.	1			
TYLA		-11 -7 7 16				7			
TYAN						<u> </u>			
REMINDER II	Mari	MATION		23.	Canonii	00 10-0 10-0	OE Code:	Beforense ID:	
1 = Silt/Clay	1 = Pre	esent			Canopy: 1 = < 2%		QE Code: 0 = as defined	Reference ID: Unique number or	
2 = Silt w/Sand 3 = Sand w/Silt	0 = abs	sent			2 = 2-20% 3 = 21-60%		1 = Species suspe 2 = Genus suspected	letter to denote specific location of a species.	
4 = Hard Clay		Organic			4 = > 60%		3 = Unknown	referenced on attached map	
5 = Gravel/Rock 6 = Sand	1 = Pre 0 = abs								
u - Janu	J - AUS	oci it			Abundar	1ce:	Voucher:		
		I Surface Cover			1 = < 2%		0 = Not Taken		
		inrooted floating lating, rooted			2 = 2-20% 3 = 21-60%		1 = Taken, not varified 2 = Taken, varified		
	E = Em	nergent			4 = > 60%		SER WARE MADER		
	S = Su	bmersed						65	

Aquatic Vegetati State of Indian							Page of	
	FTIC ENHAN				NC	DATE: 5/15/	06	
	SITE INFO			2-14-1		- Charles of the Control of the Cont	OORDINATES	
Plant Bed ID: / 5	Waterbody Nan		011			Center of the Bed		
Bed Size:	WEST	OTTE	R LA	KE				
7	Control of the second		70.00	33472		Latitude:		
Substrate:	Waterbody ID:	1000000						
Mari? ()	Total # of Spec	X0.11 50				Max. Lakeward Extent of Bed		
High Organic?		N:		ince at Sito	E: [Latitude:		
SPE	CIES INFORM	000 000000000				Longitude:		
Species Code	Abundance	QE	Vchr.	Ref. ID	1	Individual Disco	D-16	
CH ?AR	2	GC.	venr,	Kei, III	1	Individual Plant	Bed Survey	
MYSP2 /	1			- 10 mm	1	~		
MYHE V	102	77. 13.07	-		1	1	1	
POIL	1		-		1	_		
POCR3 V	1	econtrol			1	1		
ALGA	1				-)	1	
	+				1		991200	
POPR 5			-			1		
UTMA	+				1	(11/2	
NAFL	+		- 44		1	1		
POPE 6	-		- 3			Servi !	Travel Pattern	
8020 V	10	_	- 3	- 10	1			
ELCA	d	_			1	Plant Bed ID # 01		
CEDEV	11				1			
5c sp	11,				Comments			
IRBI V						ICK UU	1 m	
LYSA		-			× 2.2	/(X = 0	. 1.1	
NYTU V					-			
SACU								
ARUM	-							
NULU F	1							
TYLA	+ -	_			1			
TYAN REMINDER INFOR	MATION				- PART CENTRE	etra-essales essales		
Substrate: Mari 1 = Silt/Clay 1 = Pi 2 = Silt w/Sand 0 = at 3 = Sand w/Silt 4 = Hard Clay High 5 = Gravel/Rock 1 = Pi	resent osent Organic esent			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%		QE Code; 0 = as defined 1 = Species suspe 2 = Genus suspected 3 = Unknown	Reference ID: Unique number or letter to denote specific location of a species; referenced on attached map	
N = N F = FI E = Er	esent all Surface Cover onrooted floating oating, rooted mergent ubmersed			Abundan 1 = < 2% 2 = 2-20% 3 = 21-60% 1 = > 60%	ce:	Voucher: 0 = Not Taken 1 = Taken, not vanified 2 = Taken, vanified	æ	

	TIC ENHAN	_			DATE: 5/15/06		
	SITE INFOR	A. Tali		2-1/4E1/			
Plant Bed ID: 16	Waterbody Nam	V. C. S. L.	1014		SITE COORDINATES		
	WEST	OTTE	R LA	KE	Center of the Bed		
led Size: Substrate: Z		(%)			Latitude:		
1	Waterbody ID:				Longitude:		
ari?	Total # of Specie	54200000		and consumption	Max. Lakeward Extent of Bed		
igh Organic?	(AAA)	anopy		ince at Site	Latitude:		
2000	100	Selection visc		Fi	Longitude:		
	CIES INFORMA	TION					
Species Code	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey		
CH ?AR V	1.5				_		
MYSP2							
MYHE -	2						
POIL X	1						
POCR3					Y 1		
ALGA) (
POPR 5							
UTMA		-					
NAFL							
POPE 6							
DEV ASS	1 1		3 3		Travel Patter		
					Plant Bed ID # 01		
1				Micelli C	That bed ib # of		
Sc SPV	1	_		-	mments;		
SC SP V		_					
YTU V	1						
ACU							
RUM							
ULU		-					
YLA							
YAN REMINDER INFOR	MATION	1,00					
bstrate: Marl	esent sent Organic		1 2 3	anopy: = < 2% = 2-20% = 21-80% = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspected letter to denote specific location of a species; 3 = Unknown referenced on attached map		
O = ab Overa N = No F = Fig E = En			3	Abundano = < 2% = 2-20% = 21-60% = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier		

Aquatic Vege		on Plant B				Page of
Control of the Contro		TC ENHAN				DATE: 5/15/06
		SITE INFO		New York		SITE COORDINATES
Plant Bed ID:	1	Waterbody Nar		M		Center of the Bed
Bed Size:		WEST	OTTE	R LA	IKE	Latitude:
Substrate: 2		Waterbody ID:			=	Longitude:
Mari?		Total # of Spec	ies		-	Max. Lakeward Extent of Bed
High Organic7)			Abund	ance at Sit	Latitude:
			N:		F:	Longitude:
	SPEC	IES INFORM	ATION		MERCHANICAL STREET	
Species Cod	8	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
CH ?AR	-	4				
MYSP2		1				
MYHE	V	3				
POIL	1	1		maradila Lachinger	()	<u> </u>
POCR 3	V	2				\
ALGA		~) 1
POPR 5	-143			1200000		
UTMA						
NAFL						
POPE 6					101-11-1	
6020	1					Travel Pattern
						Plant Bed ID # 01
(D.En	-	-	
The state of the s						II and
		e situation of			e de la companya de l	omments:
LYSA						
NYTU						
SACU		0.385				
ARUM						
NULU		The Court State		9 9		
TYLA						
TYAN						CONTRACTOR AND CONTRA
REMINDER IN Substrate:	NFORM Marl	ATION			Canopy:	QE Code: Reference ID:
= Sill/Clay	1 = Pres				1 = < 2%	0 = as defined Unique number or
= Silt w/Sand = Sand w/Silt	0 = abse	ent			2 = 2-20% 3 = 21-60%	1 = Species suspet letter to denote specific 2 = Genus suspected location of a species;
	High Or 1 = Pres			93	\$ = > 60%	3 = Unknown referenced on attached map
	0 = abse					
- (Overall	Surface Cover			Abundar 1 = < 2%	Voucher: 0 ≈ Not Taken
	N = Non	rooted floating			2 = 2-20%	1 = Taken, not varified
	F = Floa E = Eme	ting, rooted rgent			3 = 21-60% 1 = > 60%	2 = Taken, varifier
	S = Subi					19

Aquatic Veç	F					Page of
		Departmen				La state
ORGANIZATION.	MOUA	TIC ENHAM			SURVEY, IN	JC. DATE: 5/15/06
	_	SITE INFO		rion		SITE COORDINATES
Plant Bed ID:	8	Waterbody Nar				Center of the Bed
Bed Size:		WEST	Our	=K LA	KE	Latitude:
	2	Waterbody ID:		34:0=E		Longitude:
	V .	Total # of Spec	ies			Max. Lakeward Extent of Bed
High Organic?	0	CUX	-	-	ance at Site	Latitude:
		s:	N;		F:	E: Longitude:
	SPEC	CIES INFORM	ATION			
Species Co		Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
CH ?AR		5			1	
MYSP2			5 000	2		
MYHE	1					
POIL	1/	3				
POCR 3	+	25%				1
ALGA						1
POPR 5	1	I				
UTMA						
NAFL						1 7 2
POPE 6						Toward Date
DERE	·V	7				Travel Patte
AT PA	-1	4				Plant Bed ID # 01
1	Evacon.					30 - 40000 Million - 4000 Million -
					ā.	
5r 6P	V	2				Comments:
LYSA						SHURE RUCH UNAL
NYTU ~	-	2				
SACU		-				
ARUM						
NULU			110000000			
TYLA						
TYAN						
REMINDER		IATION		-		res s
Substrate: 1 = Sitt/Clay	Marl 1 = Pres	sent			Canopy: 1 = < 2%	QE Code: Reference ID: 0 = as defined Unique number or
2 = Silt w/Sand 3 = Sand w/Silt	0 = abse	ent		2	2 = 2-20%	1 = Species suspe letter to denote specific
4 = Hard Clay	High Or					2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
5 = Gravel/Rock 6 = Sand	1 = Pres 0 = abse					
Gland			a a	1	Abundance	A STATE OF THE STA
		Surface Cover proofed floating			1 = < 2% 2 = 2-20%	0 = Not Taken 1 = Taken, not varified
	F = Floa	ating, rooted		3	3 = 21-80%	2 = Taken, varified
	E = Eme	ergent omersed		-7	4 = > 60%	

State of Indian							
ORGANIZATION: AQUI	FIIC ENHAM	ICEME	NT &	SURVEY, IN	DATE: 5/15/06		
	SITE INFO		ION	-12	SITE COORDINATES		
lant Bed ID: 19	Waterbody Nar				Center of the Bed		
ed Size:	WEST	OTTE	R LA	KE	Latitude:		
ubstrate: 2	Waterbody ID:				Longitude:		
ari? D	Total # of Spec	ine.					
gh Organic?			Abumal	ance at Site	Max, Lakeward Extent of Bed		
0		N:	Abuna	F: E	Latitude:		
SPE	CIES INFORMA	ATION			Longitude:		
Species Code	Abundance						
CH ?AR V	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey		
MYSP2 L	201				0		
	2	_					
MYHE	1				\		
POIL.	-		egetter/a-				
POCR3	2			l e e	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
ALGA) (
POPR 5	AZ OLITA						
UTMA							
NAFL							
POPE 6	1111		Sat 9				
SEPE V	3				Travel Patte		
	1		-				
10200	1	-			Plant Bed ID # 01		
0 1/							
POCHV	-/-						
c SPV				C	ments:		
YSA	_						
YTU V	2						
tCU .				a selection			
:um	All						
VLU V	2						
ILA P	1						
AN	1			3			
REMINDER INFORM	ATION				some W		
strate: Mari Sil/Clay 1 = Pre	sent			anopy: = < 2%	QE Code: Reference ID: 0 = as defined Unique number or		
Silt w/Sand 0 = abs	0 = absent 2 = 2-20%				1 = Species suspe letter to denote specific		
Sand w/Silt Hard Clay High O					2 = Genus suspected location of a species; 3 = Unknown referenced on attached map		
Gravel/Rock 1 = Pre	sent				- Simple in an acreed map		
Sand 0 = abs	ent			Abundance:	Voucher:		
	Surface Cover			= < 2%	0 = Not Taken		
	erooled floating ating, rooted			= 2-20% = 21-60%	1 = Taken, not varified		
E = Em	ergent			= > 60%	2 = Taken, varified		
S = Sub	mersed						

Aquatic Ve						Page of _		
ORGANIZATION:		TC ENHAN				C. DATE: 5/15/06		
100		SITE INFO	VIS AND	477 N. F. S. S. S.		SITE COORDINATES		
Plant Bed ID:	0	Waterbody Nan				Center of the Bed		
Bed Size		WEST	OTTE	R LA	KE	ALL CONTROL OF THE PARTY OF THE		
Substrate: 2		Waterbody ID:				Latitude:		
Mari?	***	Taken to more than	23			Longitude:		
High Organic?)	Total # of Speci	-			Max. Lakeward Extent of Bed		
riigii Organici		CanopyAbundance at Site S: N: F: E: 2				Latitude:		
	SDE	CIES INCORN	TION			Longitude:		
Species Co	Andrew Tark	CIES INFORMA	-	=500,10		PARTICIPAL DESIGN RECOGNIS		
CH ? AR	V	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey		
		7			Valley III	^		
MYSP2	V	29	-		-			
MYHE	1	- %		1775				
POIL	-	1	-					
POCR 3	V)				7		
ALGA	42-00-							
POPR 5								
UTMA								
NAFL								
POPE 6		1		Secusion 1		Travel Patte		
FLCA	V	2				Travel Palle		
SA SF			1311111		N S A S A S A S A S A S A S A S A S A S	Plant Bed ID # 01		
POHOWE	FOU							
	2000 V							
IRBI	1	-			ŋ	omments:		
LYSA	/				7			
NYTU	V		26:					
SACU	-							
ARUM	O III							
NULU				-				
TYLA								
TYAN								
REMINDER		MATION		_	ornanews	See Province		
Substrate: I = Silt/Clay	Mari 1 = Pro	cont			Canopy:	QE Code: Reference ID: 0 = as defined Unique number or		
? = Silt w/Sand		Present 1 = < 2% absent 2 = 2-20%				1 = Species suspe letter to denote specific		
I = Sand w/Silt I = Hard Clay	High O	manle			3 = 21-60% 1 = > 60%	2 = Genus suspected location of a species;		
= Gravel/Rock	1 = Pre	sent				3 = Unknown referenced on attached ma		
= Sand	0 = abs	ent			Abundan	Voucher:		
	Overall	Surface Cover		- 1	Abundar = < 2%	voucher: 0 = Not Taken		
		nrooted floating			2 = 2-20%	1 = Taken, not varified		
		ating, rooted ergent			= 21-60% = > 60%	2 = Taken, varified		
E = Er		omersed		-	0076	200		

Appendix B Tier I Data Sheets 8/06

Tier I Aquatic Vege	tation Reconnaissance Sampling
<u>w</u>	aterbody Cover Sheet
Surveying Organization: AQU	ATIC ENHANCEMENT & SURVEY, INC.
Waterbody Name: WEST OTT	ER LAKE Lake ID:
County: STEUBEN	Date: 8 /4 /06
, -	ve. Lake 17 Lake Level:
	GPS Metadata
Crew Leader: 50	NAD 27 16 +/- 6m
	Datum: Zone: Accuracy:
Recorder:	Method: WAAS GPS
0.0	al # of Plant 20 Total # of Species:
Littoral Zone Size (acres):	Littoral Zone Max. Depth (ft):
□ Measured 65	Measured 10 PLANT
Estimated	☐ Estimate (historical Secchi)
	Estimated (current Secchi)
Notable Conditions: SVRVEY. HAS SUF	RAINFAU PRECEDED RAINFAU DURING SURVIEW, WATER CLARVIY FERED. LAKE APPROX. "HIGH

	Aquatic Vegetation State of Indian						Page of	
	ORGANIZATION: AQUA					DATE: 8/4	106	
L		SITE INFO		N		SITE COORDINATES		
F	Plant Bed ID:	Waterbody Nar		128		Cen	iter of the Bed	
E	Bed Size:	WEST	OTTER	LAKE		Latitude: Longitude:		
5	Substrate: 3	Waterbody ID:						
	Mari?	Total # of Spec	les 54	F		The same of the sa	eward Extent of Bed	
-	High Organic?		CanopyAb	undance at SII	0	Latitude:	THE EMOTE OF DOG	
			N:	F:	E: 3	Longitude:		
	SPE	CIES INFORM	ATION	e to a second		actignade.		
_ [Species Code	Abundance	QE V	hr. Ref. ID	Tr.	Individual Plan	at Red Survey	
DEL3	CH ?AR				550 500	W. 1700		
	MYSP2V	2			1	_		
	MYHE	A. A		1			1	
Γ	POIL .					_		
Ī	POCR 3					1		
	ALGAL	2	HITTOCOL DE LA		1)		
ı	POPR 5				1		\sim 1	
1	UTMA				-			
t	NAFL					1	2111	
1	POPE 6	-						
1	ELCAL	2	_			Plant Bed ID # 01		
t	ZAPA (HOAN)				3			
1	POPE		_		1	Fight Bed ID # 01		
	Swamplouser	ļ — —		17.50	-			
1	IRYIV	2			Commen	ts:		
	LYSA	-	_			7000		
-	NYTUL	3			-			
	SAL	3			1			
_	ARUM	-		-	4			
-	NULU		- 1		-			
	TYLA		-		-			
	2000				1			
	REMINDER INFORM	MATION						
1 2 3 4 5	SilvClay	esent sent Organic esent		Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 80%		QE Code: 0 = as defined 1 = Species suspected 2 = Genus suspected 3 = Unknown	Reference ID: Unique number or letter to denote specific location of a species; referenced on attached map	
6	N = No F = Flo E = Em	I Surface Cover nrooted floating ating, rooted		Abundar 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	nce:	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier		

	State of Indian					UC.	DATE: 8/4/	06				
		SITE INFO	W. Commercial Co.	Francisco Company	NAEL' LI	vC1	SITE COORDINATES					
	Plant Bed ID: 2	Waterbody Nar		ION			Utilities Viene	A CONTRACTOR OF THE PARTY OF TH				
	,	WEST	OTTE	RIA	KE		Center of the Bed					
	Bed Size:			- Cu	(()		Latitude:					
	Substrate:	Waterbody ID:				1990	Longitude:					
	Mari?	Total # of Spec	2200			Max. Lakeward Extent of Bed						
	High Organic?	S:	Canopy N:		nce at Site		Latifude:					
					F2)	E:	Longitude:					
		CIES INFORM		lance -		1						
EDEL3	Species Code	Abundance	QE	Vehr.	Ref. ID	1	Individual Plant	Bed Survey				
NEND	CH ?AR	2	-			\ \ \ \ \						
	MYSP2	-					1					
	MYHE	-										
	POIL											
	POCR 3					1)					
	ALGAL	3	Salvinsky and					1				
	POPR 5							()				
	UTMAL	2					1					
	NAFL			A8.05.A=5.1	evere and our		1	7(1)				
	POPE 6	1					Carrie I	Towns Davis				
	ELCAV	1.3		See Health			- Vi	Travel Patte				
	ZAPA (HORA)					- 4	Plant Bed ID # 01					
7.11	POPE				-	1						
	Swamplouse											
	IRYIV	11				Comments:						
	LYSA					MATH	Y CEAR SI	CA DEAN COLO.				
	NYTUL	2	W 5		12 12 14	- 110010	a CADI, EU	CA, DEAD CHARA				
	SASP. V	2_					AE ABUNDANT N					
	ARUM				- Late - Season			LAK END OF				
	NULUV	2				CH	ANNEL					
	TYLA					- 110	MYSP NOTED	2				
	POCO				7-15	- 100	MILES NOTES					
	REMINDER INFOR Substrate: Mari	MATION	N. DOMESTIC	W 100		-						
	1 = Sill/Clay	organic esent esent sent Il Surface Cover prirocted floating		1 2 3 4	2009: = < 2% = 2-20% = 21-80% = > 60% Abundance = < 2% = 2-20%	ia: \	QE Code: 0 = as defined 1 = Species suspt 2 = Genus suspected 3 = Unknown Voucher: 0 = Not Taken 1 = Taken, not varified	Reference ID: Unique number or letter to denote specific location of a species; referenced on attached map				
	N = No F = Flo E = En			3	= < 2%	1) ≥ Not Taken					

	Aquatic Vegetati				Page of			
		FTIC ENHAN				C. DATE: 8/4/06		
		SITE INFO			SITE COORDINATES			
	Plant Bed ID: 3	Waterbody Nan				Center of the Bed		
	Bed Size:	WEST	OTTE	R LA	KE	Latitude:		
	Substrate: 7	Waterbody ID:		OK 123383		Longitude:		
	Mari?	Total # of Speci	, C	5 6	3	Max. Lakeward Extent of Bed		
	High Organic?	E STATE OF THE STA		and the same	ance at Site	Latitude:		
	The state of the s		N;	-	F: E			
	SPE	CIES INFORMA	ATION	7	- L	Longada.		
	Species Code	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey		
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3845 (A 55 4)	MYSP2V		V	0.000	Transcript of	\sim		
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	POIL					_		
	POCR31	1	1000			1		
	ALGA		-)		
	POPR 5	- A.						
	UTMA	-						
	NAFLV	3						
	POPE 6							
	ELCAL	4				Travel Pattern		
	ZAPA (HOAN)	+-				Plant Bed ID # 01		
	POPE		9 40 19			Transfer is # 01		
	Swamplouse	-	GUES S					
	IRVI	+	_		Č	comments:		
	LYSA					and the second second second second		
	NYTUV	2	-			- MIDDLE CHANNEL		
	SASP. V 2							
	ARUM					- LITE TURBIDIDY AGAIN NEAR END		
	NULU					- LITE TURBIDIDY AGAIN NEAR END - (BETENOS APPROX. Y2 DOWN CHAN-)		
	TYLAV					2011-2016		
	POCO	1				POSSIBNE FEN? - RON >445 NO TIVE		
	REMINDER INFOR	MATION	Value -		erice constitution			
	2 = Sitt w/Sand 0 = at 3 = Sand w/Sitt	Organic resent			Cenopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species susper letter to denote specific 2 = Genus suspected location of a species; 3 = Unknown referenced on attached map		
	N = N F = Fk E = Er	all Surface Cover perioded floating pating, rooted mergent ubmersed		3	Abundance 4 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	: Voucher: 0 = Not Taken 1 = Taken, not verified 2 = Taken, varifier		

ORGANIZATION: AQUA	TIC ENHAN	CEME	NT &	SURVEY, IN	C. DATE: 8/4/06
	SITE INFO	or Thwe	- 12 miles		SITE COORDINATES
Plant Bed ID: 4	Waterbody Nam	ne:	5-50 HP0-0		Center of the Bed
Bed Size	WEST	OTHE	R LA	KE	Latitude:
Substrate: 7	Waterbody ID:				Longitude:
Mari?	Total # of Speci	ies (59	£4	Max. Lakeward Extent of B
High Organic?			Abunda	ince at Site	Latitude:
		N:			Longitude:
SPE	CIES INFORMA	ATION	70 15 2		congresse,
Species Code	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
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MYHE				source lunion	
POIL					<u> </u>
POCR3					
ALGA	100			V-1981)
POPR 5		111			
UTMAL	1)				
NAFL V	3				
POPE 6 V	3				
ELCA V	2				Tra
ZAPA (HOAN)	1.0	- 22		Main company	Plant Bed ID # 01
POPE					THE SECULO IN A L
Swamplouse	,	-			
IRVI	1			N I	omments:
LYSA					2
NYTULI	-		-		PORI- (NEW?) POGR- (NEW?) LOTS OF SAGO
SASe 1					0-4
ARUM	(- C				PDGR- (NEW?)
NULU				-	· · · · /
TYLA					LOTS OF SAGO
POCO V Z					0000
REMINDER INFOR	MATION	-			
ubstrate: Mart = Sill/Clay 1 = Pr	esent			Canopy: 1 = < 2%	QE Code: Reference ID: 0 = as defined Unique number of
= Sift w/Sand 0 = ab	sent			2 = 2-20%	1 = Species suspe letter to denote sp
= Sand w/Silt = Hard Clay High	Organic			3 = 21-60% 4 = > 60%	2 = Genus suspected location of a spec 3 = Unknown referenced on attr
i = Gravel/Rock 1 = Pr i = Sand 0 = ab					
17				Abundanc	Voucher:
	Il Surface Cover phrooted floating	5		l = < 2% 2 = 2-20%	0 = Not Taken 1 = Taken, not varified
F = Flo	ating, rooted		3	= 21-80%	1 = Taken, not vanhed 2 = Taken, varified
E = En	nergent		2.43	= > 60%	

State of Indiana ORGANIZATION: A QUA	TC ENHAL				- 1
		C. DATE: 8/	1/06		
	SITE INFO	RMATION		SIT	E COORDINATES
Plant Bed ID: 5	Waterbody Nar	-0.00		C	enter of the Bed
Bed Size:	WEST	OTTER	LAKE	Latitude:	
Substrate: 2	Waterbody ID:				
No.		ies SIn	E4	Andrew Ten	akeward Extent of Bed
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	S: (N:	F:	- 2	
SPE	CIES INFORM	ATION	to not be a second	3000 m 2 3000 2 300 m 2 5 m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
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	2				Travel Pat
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The same of the last of the la			+	Plant Bed ID # 01	
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				JUVITI CHITIC	Tt L
			-		
CONTRACTOR OF STREET	73				
The state of the s		-			
			a Recorded		
	MATION				
2 = Silt w/Sand 0 = ab: 3 = Sand w/Silt 4 = Hard Clay High C 5 = Gravel/Rock 1 = Pre 3 = Sand 0 = ab: Overal N = No	gent Organic esent sent I Surface Cover enrooted floating		1 = < 2% 2 = 2-20%	3 = Unknown Voucher: 0 = Not Taken 1 = Taken, not varified	referenced on attached ma
	High Organic? SPE Species Code CH?AR MYSP2 MYHEL POIL POCR3 ALGA POPR5 UTMAL NAFLL POPE ELCAL ZAPA (HOAN) POPE SWAMP LOUSE IRVI LYSA NYTU SASP.L ARUM NULU TYLAL POCO REMINDER INFORI Substrate: Mart 1 = Sitt Viay 2 = Sitt Viay 1 = Stand 0 = abs Overal N = No Coveral N = No Cov	High Organic? S: SPECIES INFORM Species Code Abundance CH?AR \(\) 2 MYSP2\(\) 3 MYHEL\(\) 2 POIL POCR3\(\) 3 POPR5\(\) 1 UTMA\(\) 3 POPE6 ELCA\(\) 2 ZAPA(NOWAN) POPE SWAMP LOUJE IRVI LYSA NYTU\(\) 2 SASP.\(\) 2 ARUM NULU TYLA\(\) 2 ARUM NULU TYLA\(\) 2 REMINDER INFORMATION Substrate: Mart 1 = SiltClay 1 = SiltClay 1 = SiltClay 1 = Sand w/Silt 1 = Hard Clay 1 = Gravel/Rock 1 = Present 0 = absent 0 = absent	Man? Total # of Species S[O] High Organic? SPECIES INFORMATION Species Code Abundance QE Ve CH?AR V Z MYSP2V 3 MYHEV Z POIL POCR3V 1 ALGA 3 POPR5V 1 UTMAV 3 NAFL 3 POPE6 ELCAV 2 ZAPA (NORM) POPE SWAMP LOW'SE (INFORMATION) Substrate: Marl LYSA NYTU Z SASP V Z ARUM NULU TYLA V POCO REMINDER INFORMATION Substrate: Substrate: Marl 1 = Present 0 = absent 1 = Silt WiSand 0 = absent 1 = Sand wiSilt 1 = Hard Clay 1 = Present 0 = absent 0	Mari? Total # of Species EA High Organic? CanopyAbundance at Site	Main

	Ina Department	-			DATE: 8/ /06		
7100	Charles and Dec		97.100				
7	SITE INFO Waterbody Nan		ION		SITE COORDINATES		
Plant Bed ID:	WEST			Ve	Center of the Bed		
Bed Size:	MESI	Out	K LA	KE	Latitude:		
Substrate:	Waterbody ID:				Longitude:		
Mart?	Total # of Spec	ies			Max. Lakeward Extent of Bed		
High Organic?	anic? CanopyAbundance at Site			ance at Site	Latitude:		
	S:	N:		F: E:	Longitude:		
SF	PECIES INFORM	ATION		Maria Santa Mari			
Species Code	Abundance	QE	Vchr,	Ref. ID	Individual Plant Bed Survey		
CH ?AR							
MYSP2							
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POIL		-			<u> </u>		
POCR 3							
ALGA		- 1)		
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VTMA		4-4-6	2000	or the same of the			
NAFL				-			
POPE 6					Travel Patte		
ELCA							
POPE .	_				Plant Bed ID # 01		
Swamplouse	1	27.0	7777				
IRVI				Co	nments:		
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NYTU							
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ARUM	/						
NULU	1 III COLECTED S						
TYLA							
P000	Sign and the Autor and Aut						
REMINDER INFO				postoja je	10000000000000000000000000000000000000		
industrate: Marl = Silt/Clay 1 = Present = Silt w/Sand 0 = absent = Sand w/Silt = Hard Clay High Organic = Gravel/Rock 1 = Present			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspt (etter to denote specific location of a species; referenced on attached magnetic location of a species species and species are species as a spe			
S = Sand 0 = 8 Over N = 1 E = 8	O = absent Overall Surface Cover N = Nonrooted floating F = Floating, rooted E = Emergent S = Submersed			Abundance: 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier		

ORGANIZATION:	AQUA	TIC ENHAN	CEME	NT &	SURVEY. I	C. DATE: 8/ /06		
		SITE INFO	Sept. Views	- A	SITE COORDINATES			
n n n	a state	Waterbody Nam		ion				
Plant Bed ID:		WEST	OTIF	RIA	KE	Center of the Bed		
Bed Size:		Page 10 Co		-11		Latitude:		
Substrate:		Waterbody ID:				Longitude:		
Mari?		Total # of Species				Max. Lakeward Extent of Bed		
High Organic?		CanopyAbundance at Site			ance at Site	Latitude:		
			N:		F:	E: Longitude:		
		CIES INFORM	2200000	T	5.9550	VINETAGE AND THE THE		
Species Co	ebe	Abundance	QE	Vchr.	Ref. ID	Individual Plant Bed Survey		
CH ?AR		1	151	-		^		
MYSP2		1		-				
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POIL								
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VIMA NAFL POPE 6 ELCA ZAPA (HOAM)		199						
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				1				
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			1	Plant Bed ID # 01				
POPE								
Swamploo	÷E	,						
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LYSA			-			g Brack s		
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SA		10						
ARUM					-			
NULU			5					
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REMINDER	INFOR	MATION	-					
Substrate: Marl			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspt letter to denote specific 2 = Genus suspected location of a species, 3 = Unknown referenced on attached map				
O = absent Overall Surface Cover N = Nonrooted floating F = Floating, rooted E = Emergent S = Submersed				Abundan 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	e: Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varified			

ORGANIZATION:	AQUATIC ENHA	NCEME	NT &	SURVEY, IN	DATE: 8/ /06			
	SITE INF			SITE COORDINATES				
Plant Bed ID:	Waterbody N					Center of the Bed		
Bed Size:	WEST	OTTE	ER LA	KE	Comments of the Comments of th	Letitude:		
Substrate:	Waterbody II			2007	Longitude:			
Mari7	Total # of Sp			Marie Control	Max. Lakeward	Extent of Rod		
High Organic?	Total # of Sp		uA bund	ance at Site		Extent of Bed		
raight Organics	S:	N:	YADUIU	F:	Latitude:			
	SPECIES INFOR	MATION			Eorginoe.			
Species Co	70 BOX 9		Vehr.	Ref. ID	Individual Plant Bed	Surran		
CH ?AR	Abulidanc	e uc	vent.	Rei, ID	Individual Flant Bed	survey		
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AN INCOMESTICATION	+ +-	+	-			1		
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		+						
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NAFL POPE 6								
				Travel Pattern				
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REMINDER Substrate:	INFORMATION Mari			Canopy:	QE Code: Re	forence ID:		
= Silt/Clay 1 = Present				1 = < 2%		Reference ID: Unique number or		
! = Silt w/Sand ! = Sand w/Silt	0 = absent			2 = 2-20% 3 = 21-60%		er to denote specific ation of a species;		
= Hard Clay	High Organic	gh Organic 4 =		4 = > 60%	The state of the s	referenced on attached map		
= Gravel/Rock = Sand	1 = Present 0 = absent							
INTERNATION OF THE PERSON OF T				Abundand	Voucher:			
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	F = Floating, rooted	T.		3 = 21-60%				
	E = Emergent S = Submersed			4 ≈ > 60%				

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ORGANIZATION:		TIC ENHAN				C. DATE: 8/ /06
		SITE INFO	000	SITE COORDINATES		
Plant Bed ID:	1	Waterbody Nam				
Bed Size:	-	WEST	OTTE	R LA	KE	Center of the Bed
Substrate:	*	Waterbody ID:				Latitude:
Mari?	200200	San Discourse Sie vo	220		-	Longitude:
	*	Total # of Speci	_	Abund		Max. Lakeward Extent of Bed
riigit Organici	ligh Organic? CanopyAbundance at Sit			The second second	F:	Latitude:
	SPE	CIES INFORM	TION		100	Longitude:
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CH ?AR		Abditioning	46	venr.	Rei, ID	Individual Plant Bed Survey
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ZAPA (HOA)	<u>~</u>		-500			Plant Bed ID # 01
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Swamplo	U.J.E.	1				Comments;
IRVI			-		10	Sommands.
LYSA						
NYTU			-362/867			
SA						
ARUM						
NULU						
TYLA						
POCO -	RINFORM	MATION				
Substrate: 1 = Sit/Clay 2 = Silt w/Sand 3 = Sand w/Silt 4 = Hard Clay 5 = Gravel/Rock	Mari 1 = Pre 0 = abs High 0 1 = Pre	esent sent Organic eseni			Canopy: l = < 2% l = 2-20% d = 21-60% l = > 60%	QE Code: 0 = as defined 1 = Species suspected 2 = Genus suspected 3 = Unknown Reference ID: Unique number or letter to denote specific location of a species; referenced on attached map
= Sand 0 = absent Overall Surface Cover N = Nonrooted floating F = Floating, rooted E = Emergent S = Submersed		3	Abundanc = < 2% = 2-20% = 21-60% = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier		

State of	Indiana Departmen	t of Na	atural R	esources	LITTLE SECRETARION CONTRACTOR STREET		
ORGANIZATION:	AQUATIC ENHAM	ICEM	ent & "	SURVEY, INC.	DATE: 8//	06	
	SITE INFO	RMAT	SITE COORDINATES				
Plant Bed ID:	Waterbody Na			7019	The state of the s	er of the Bed	
Bed Size:	WEST	OTH	ER LA	KE	Latitude:	or or the Dea	
Substrate:	Waterbody ID:						
Mari?	Total # of Spec	ina	1000 m	The state of the last	Longitude:		
High Organic?		199	. A base of	014	0.000	ward Extent of Bed	
ingir organici	S:	N:		F: E:	Latitude:		
			_		Longitude:		
Secolos Co	SPECIES INFORM	- No. 10. 10.			P/92/00/ 12/20		
CH ? AR	de Abundance	QE	Vchr.	Ref. 1D	Individual Plant	Bed Survey	
		= ***					
MYSP2							
MYHE							
POIL						1	
POCR 3					1	, life	
ALGA					1	18 90	
POPR 5							
UTMA		0			1	111	
NAFL			SALAR.			X : X	
POPE 6					City		
ELCA					Y	Travel Patte	
ZAPASHOAN)			7-5-200	Plent Bed ID # 01		
POPE		-			Tidil Bod to II of		
Swamploo				- 13 13 - 1			
IRVI				Comm	nents:	00000	
LYSA	100 1	-			WARFOR.		
NYTU							
SA							
		-		-			
ARUM		koosmis.					
NULU	No.		-				
TYLA	-77						
POCO	INFORMATION				- 11 CH		
Substrate:	Mari		0	алору:	QE Code:	Reference ID:	
= SilvClay	1 = Present		- 1	= < 2%	0 = as defined	Unique number or	
= Silt w/Sand 0 = absent 2 = 2-20% = Sand w/Silt 3 = 21-80%				1 = Species suspe 2 = Genus suspected	letter to denote specific		
= Hard Clay	High Organic	4 = > 60%			3 = Unknown	location of a species; referenced on attached map	
= Gravel/Rock = Sand	1 = Present 0 = absent					The assessment	
	over a constraint of			Abundance:	Voucher:		
	Overall Surface Cover			= < 2%	0 = Not Taken		
	N = Nonrocted floating F = Floating, rooted			= 2-20% = 21-60%	1 = Taken, not varified 2 = Taken, varifier		
	E = Emergent			= > 60%	2 = Taken, varified		

Aquatic Ve State o		a Department				Page of
ORGANIZATION:	AQUA	FTIC ENHAL	ICEM	ENT &	SURVEY, I	C. DATE: 8/ /06
1988-1919		SITE INFO	SITE COORDINATES			
Plant Bed ID:	All and the same of	Waterbody Nar	1.500			Center of the Bed
Bed Size:		WEST	OTH	ER LA	KE	Latitude:
Substrate:		Waterbody ID:				Longitude:
Mari7		Total # of Spec	85	1		Max. Lakeward Extent of Bed
High Organic?	7			vAbunda	nce at Site	Latitude:
	X-25-1		N:	0.00-0.00	F:	Longitude:
	SPE	CIES INFORM	ATION			Evrigitude.
Species C	(S)(A)(A)	Abundance	QE	Vchr.	Ref. ID	Individual Plant Bed Survey
CH ?AR				1,000	IXCL ID	maryiddar Fight Bed Survey
MYSP.					-	\sim
MYHE		-	-			
POIL			-		-	
POCR 3			-		-	
ALGA		1	-1000)
POPR 5	1000				-	
		 	-			
NAFL						
POPE 6	1912		nicolani			
			-		*	Travel Pattern
ELCA	.)		E 44500			
POPE POPE	<u>~</u>					Plant Bed ID # 01
				-		
Swample	uts_	1	25			omments:
IRVI					T	onments:
LYSA						
NYTU	9-75-5					
S'A						
ARUM			.33			
NULU			-			
TYLA				Anto		
POCO	TINFORM	MATION				
Substrate:	Mari			c	anopy:	QE Code: Reference ID:
= Silt/Clay = Silt w/Sand	1 = Pre			1	≥ < 2%	0 = as defined Unique number or
= Sand w/Silt	0 = abs	sent			= 2-20% = 21-80%	1 = Species suspet letter to denote specific 2 = Genus suspected location of a species:
= Sand w/Silt = Hard Clay = Gravel/Rock	High O	Prganic			= > 60%	2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
= Gravel/Rock = Sand	1 = Pre					
- Sand	0 = abs	Sent			Abundanc	Voucher
		Surface Cover		1	= < 2%	0 = Not Taken
		nrooted floating			⇒ 2-20%	1 = Taken, not varified
	F = Flo	ating, rooted ergent			= 21-60% = > 60%	2 = Taken, varified
		omersed		•	00%	

Aquatic Ve State o		a Department				Page of
ORGANIZATION:		TIC ENHAL				OATE: 8/ /06
	***************************************	SITE INFO				SITE COORDINATES
Plant Bed ID:		Waterbody Nar	ne:			And the second s
Bed Size:	-	WEST	OTTE	ER LA	KE	Center of the Bed
Substrate:	Records.	Waterbody ID:				Lettlude:
Marl?	-	Total # of Spec	ine.	1000		Longitude:
High Organic?	11-11-11-11-11-11-11-11-11-11-11-11-11-	Total Control of the	-3.75			Max. Lakeward Extent of Bed
riigh Organici			N:		nce at Site	Latitude:
	905	CIES INFORM	ATION	-		Longitude:
Species C		Abundance				STREET, TOWN SW. DO.
CH ?AR		Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
MYSP		The Carlotte				<u> </u>
3.60 (200.000) (200.000)		-				
MYHE		-			\$ = 1/2 = 1 = 12 = 2 = 2 = 2 = 2 = 2 = 2 = 2 =	
POIL			********			
POCR 3						1
ALGA						
POPR 5				7		
UTMA						
NAFL						
POPE 6		No.				
ELCA		Military Services	HATTA L	A THE SAME	FILE-PLANE	Travel Pattern
ZAPA(HOA)	n)					Plant Bed ID # 01
POPE		9-27/10-15-7	1506			
Swamploo	, FE				\$4500 E	
IRYI					C	omments:
LYSA	GILS!		(S.W 14:		-	
NYTU					0.000	
S'A					-	
ARUM						
NULU			-			
TYLA	-		TWO S		Service The	
PUCO			-			
REMINDER		MATION	1000			TOTAL CONTRACTOR OF THE STATE O
Substrate: = Sill/Clay ! = Sill w/Sand = Sand w/Sill = Hard Clay = Gravel/Rock	Mad 1 = Pre 0 = abs High 0 1 = Pre	rganic sent		2	anopy: = < 2% = 2-20% = 21-60% = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspt fetter to denote specific 2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
= Sand	N = Nor F = Flor E = Em	Surface Cover prooted floating ating, rooted		3	Abundance: = < 2% = 2-20% = 21-80% = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier

ORGANIZATION:	AQUATIC ENHA	NCEMI	ENT &	SURVEY I	DATE: 8/ /06		
	SITE INF	The America	A 100 March 1997	2-14-17	SITE COORDINATES		
Digut Bod ID:	Waterbody N		1011	100			
Plant Bed ID:	WEST	OTH	ER LA	KE	Center of the Bed		
Bed Size:	No. of the second second		-11	1112	Latitude:		
Substrate:	Waterbody ID				Longilude:		
Mari?	Total # of Spe	7/3	226		Max. Lakeward Extent of Bed		
High Organic?			yAbund	ance at Site	Latitude:		
·	S:	N;		F:	Longitude;		
	SPECIES INFORM	7	_				
Species Co	de Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey		
CH ?AR	5 7.	-					
MYSP2			_				
MYHE							
POIL							
POCR 3					\		
ALGA				Wassasi ili)		
POPR 5			100	28900000			
UTMA							
NAFL	The state of the s		10000				
POPE 6	1						
ELCA					Travel Patte		
ZAPAGHORN)	S-188	- 50.000		Plant Bed ID # 01		
POPE		_					
			t and the				
IRY1	<u> </u>			W	ments:		
LYSA							
NYTU		-	277,000				
SA		-					
ARUM							
NULU		-					
TYLA			-				
POCO REMINDER	INFORMATION						
substrate:	Mari		2	Сапору:	QE Code: Reference ID:		
= Sllt/Clay ! = Silt w/Sand	= Slit/Clay 1 = Present 1 = < 2%				0 = as defined Unique number or		
= Sand w/Silt				3 = 21-80%	1 = Species suspet letter to denote specific 2 = Genus suspected location of a species;		
= Hard Clay = Gravel/Rock	High Organic 1 = Present		9	4 = > 60%	3 = Unknown referenced on attached map		
= Sand	0 = absent						
	Overall Surface Cove	ır	9	Abundano 1 = < 2%	Voucher: 0 = Not Taken		
	N = Nonrooted floating			2 = 2-20%	1 = Taken, not varified		
	F = Floating, rooted E = Emergent			3 = 21-60% 4 = > 60%	2 = Taken, verified		
	S = Submersed				8		

	getation Plant f Indlana Departme				Page of
ORGANIZATION:	AQUATIC ENHA	NCEM	ENT &	SURVEY, INC.	DATE: 8/ /06
And the second	SITE INF	ORMA	SITE COORDINATES		
Plant Bed ID:	Waterbody N				Center of the Bed
Bed Size:	WEST	- om	ER LA	KE	Letitude:
Substrate:	Waterbody II	D:			Longitude:
Mari?	Total # of Sp				Max. Lakeward Extent of Bed
High Organic?		5-20	vAhunda	ance at Site	Latitude:
	S:	N:		F: E:	Longitude;
	SPECIES INFOR	MATION			icongadue.
Species C	STATE OF BUILDINGS AND ADDRESS OF THE PARTY	- Annual	Vchr.	Ref. ID	Individual Blant Ball Co.
CH ?AR			7,5,011	tion 10	Individual Plant Bed Survey
MYSP					~
MYHE					
POIL					
POCR 3		1			
ALGA		+)
		-			
POPR 5		+			
UTMA				-	
NAFL					
POPE 6		-			Travel Patter
ELCA					
ZAPA (HOA)	2				Plant Bed ID # 01
POPE					
Swamplow	ute				
IRYL				Con	nments:
LYSA	re-mark				1788 ¥ 7 9 ¹⁰
NYTU					
SA					
ARUM					
NVLU					
TYLA					
POCO	1 11 120 1 1			No. of the last of	
REMINDER ubstrate:	Mari		659	1250500	
= Silt/Clay	1 = Present			anopy: = < 2%	QE Code: Reference ID: 0 = as defined Unique number or
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= Hard Clay	High Organic			= 21-60% = > 60%	2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
= Gravel/Rock = Sand	1 = Present 0 = absent				
				Abundance:	Voucher:
	Overall Surface Cov N = Nonrooted floating			= < 2% = 2-20%	0 = Not Taken
	F ≈ Floating, rooted		3	= 21-80%	1 = Taken, not varified 2 = Taken, varifier
	E = Emergent S = Submersed		4	≈ > 60%	

ON PARTY DATE OF THE PARTY	getation Plant Indiana Departme				Page of
ORGANIZATION:	AQUATIC ENHA	NCEMI	ENT	SURVEY I	OC. DATE: 8/ /06
	SITE INF		SITE COORDINATES		
Plant Bed ID:	Waterbody N		1011		
, .	WEST	OTT	-R IA	KE	Center of the Bed
Bed Size:	manus de la comp	*		1110	Latitude:
Substrate:	Waterbody II				Longitude:
Mart?	Total # of Sp	0,400	1		Max. Lakeward Extent of Bed
High Organic?	S:	Canop N:	yAbunda	nce at Site	Latitude: E: Localitude:
				r:	E: Longitude:
	SPECIES INFOR		Alegent Line		
Species C		e QE	Vchr.	Ref. ID	Individual Plant Bed Survey
CH ?AR	The second secon				<u> </u>
MYSP2					
MYHE	13	A 100 110		84. H	
POIL				- 15 Vest her 20 M	
POCR 3					
ALGA) . [
POPR 5					
UTMA	- neveral s				
NAFL	The second secon	A STATE OF			
POPE 6	14 19 19				
ELCA					Travel Pattern
ZAPA(HOAN	.)		Q45500	10-1 MOSSON	Plant Bed ID # 01
POPE	4				
Swamplow		1	-		
IRYI				SET RECES	Comments:
LYSA		+			
NYTU		2,782.7			9 0
SA					
ARUM					The state of the s
NULU		-			
TYLA					
POCO				-	
	INFORMATION	_			
Substrate: 1 = Sitt/Clay 2 = Sitt w/Sand 3 = Sand w/Sitt 4 = Hard Clay 5 = Gravel/Rock	Mari 1 = Present 0 = absent High Organic 1 = Present			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspt letter to denote specific 2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
5 = Sand	0 = absent				
	Overall Surface Cov N = Nonrooted floatin F = Floating, rooted E = Emergent S = Submersed		1	Abundan 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	e: Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifier

ORGANIZATION: AQUI	FTIC ENHAL	ICEME	NT &	SURVEY, I	. DATE: 8/ /06
	SITE INFO	SITE COORDINATES			
Plant Bed ID:	Waterbody Nar				Center of the Bed
Bed Size:	WEST	OTTE	R LA	KE.	Latitude:
Substrate: 2	Waterbody ID:				Longitude:
Mari?	Total # of Spec	ine			
High Organic?		PH 12	Abund	ance at Site	Max. Lakeward Extent of Bed
Ingil Organic/	S:	N:	Auuna	F:	Latitude:
900	CIES INFORM	100000000000000000000000000000000000000	-		Longitude:
Species Code	1				phintiphical for the
CH ?AR	Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
		-			~
MYSP2	+				
MYHE			1100115		
POIL					
POCR3)
ALGA				diameter ()
POPR 5					
UTMA	A SW-		1277000	1000000	
NAFL -				ni ninggeres	
POPE 6			1		
ELCA				M EASTER	Travel Patt
ZAPA (HOAN)			- 19	De Marie	Plant Bed ID # 01
POPE					
Swamplouse	,			2	
IRVI	1				omments:
LYSA		THE REAL PROPERTY.			
NYTU	1	57			
SA	,	-	11111		
ARUM	-				
NULU	-				
TYLA		5000	-		
P000					
REMINDER INFOR	MATION	0.310			
Substrate: Mari = Sill/Clay	esent esent Organic esent			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-60% 4 = > 60%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspt letter to denote specific 2 = Genus suspected location of a species; 3 = Unknown referenced on attached mag
N = No F = Fk E = Er	sent If Surface Cover corcooled floating cetting, rooted nergent ibmersed			Abundan 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varified

Aquatic Ve		on Plant B a Departmen				Page of
ORGANIZATION:					SURVEY, INC	, DATE: 8/-/06
		SITE INFO			an is new Arthur	SITE COORDINATES
Plant Bed ID:	1	Waterbody Na			11.00	
Bed Size:		WEST	OTH	ER LA	KE	Center of the Bed
Substrate:	80.500 0000	Waterbody ID:				Latitude: Longitude:
Marl?		Total # of Spec	ine		1.5	Max. Lakeward Extent of Bed
High Organic?		and the second		vAhund	ance at Site	Latitude:
- Harrison Harrison		S:	N:	, results	F: E:	Longitude:
	SPE	CIES INFORM	ATION			congrioue,
Species C		Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
CH ?AR						and the sea out vey
MYSP.						~
MYHE						
POIL						
POCR 3						
ALGA			745	1) 1
POPR 5						
UTMA			1944			
NAFL						
POPE 6						
ELCA	10000	-	o en la			Travel Pattern
ZAPA(HOA	n)					Plant Bed ID # 01
POPE	4					TAN DOUBLE OF THE
Swamploo			- 1	77.00	yes or our	
IRVI.	<u> </u>	-	-	1	Co	mments:
LYSA		g :: 1120-20-2	es de Santa			
NYTU					-	Type of the second
SA	*					
ARUM		T				
NULU						
TYLA		100000000		4 11 22	100 Et - 200	
POCO						
REMINDER		MATION		100	- X - M - X - M - X	No in the second of
Substrate: = Silt/Clay	Mari 1 = Pre	esent			Сапору: 1 = < 2%	QE Code: Reference ID: 0 = as defined Unique number or
= Sift w/Sand = Sand w/Silt	0 = abs	sent			2 = 2-20%	1 = Species suspe letter to denote specific
= Hard Clay	5000-500000	Organic			3 = 21-60% 1 = > 60%	2 = Genus suspected location of a species; 3 = Unknown referenced on attached map
□ Gravel/Rock □ Sand □	1 = Pre 0 = ebs					
Committee Co					Abundance:	Voucher:
		I Surface Cover prooted floating			= < 2% = 2-20%	0 = Not Taken 1 = Taken, not varified
	F = Flo	ating, rooted ergent		3	= 21-80%	2 = Taken, varified
		bmersed		. 4	= > 60%	

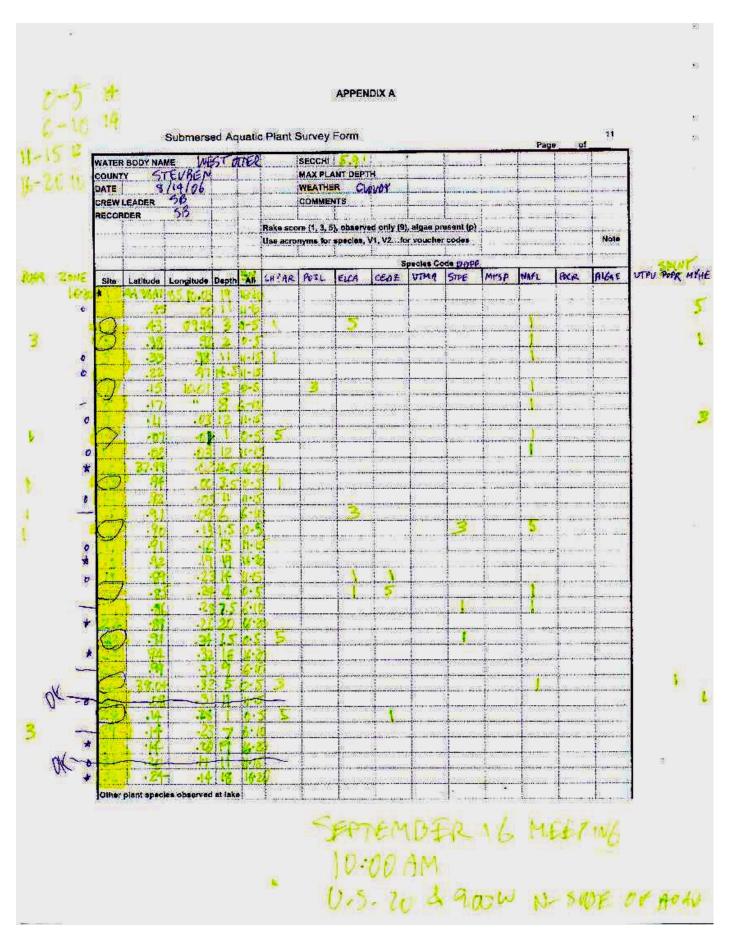
ORGANIZATION:	AQUATIC ENHA	NCEME	NT	SURVEY I	C. DATE: 8/ /06
	SITE INFO	N. W. Ashiro	SITE COORDINATES		
Plant Bed ID:	- Waterbody Na		1011		
,	WEST	OTTE	R I A	KE	Center of the Bed
Bed Size;				-	Latitude:
Substrate:	Waterbody ID			-0.000	Longitude:
Mari?	Total # of Spe	200			Max. Lakeward Extent of Bed
High Organic?	S:	Canop	Abund	ance at Site	Latitude
				r:	Longitude:
	SPECIES INFORM				
Species Cod	le Abundance	QE	Vchr.	Ref. ID	Individual Plant Bed Survey
CH ?AR		-	-		0
MYSP2		-		·	
MYHE					
POIL		-		Marie Control	
POCR3					1
ALGA) (
POPR 5					
UTMA-					
NAFL				Secretaria de la Companya de la Comp	الإلا الحر
POPE 6	B. 53				
ELCA					Travel Patter
ZAPA (HDAN)			- / 0 - /	particular services	Plant Bed ID # 01
POPE.					
Swamplows					
IRNI	*-			77	omments:
LYSA					The second secon
NYTU			\$4100mmes		
SA				-	
ARUM					
NULU	-				
TYLA		-			
POCO					
Control of the contro	NFORMATION		Communication of the Communica		
Substrate: = Silt/Clay ! = Silt w/Sand = Sand w/Silt ! = Hard Clay = Gravel/Rock	Mari 1 = Present 0 = absent High Organic 1 = Present			Canopy: 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 80%	QE Code: Reference ID: 0 = as defined Unique number or 1 = Species suspected Species; 2 = Genus suspected location of a species; referenced on attached map
= Sand	0 = absent Overall Surface Cove N = Nonrooted floating F = Floating, rooted E = Emergent S = Submersed		3	Abundano 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 60%	Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifiec

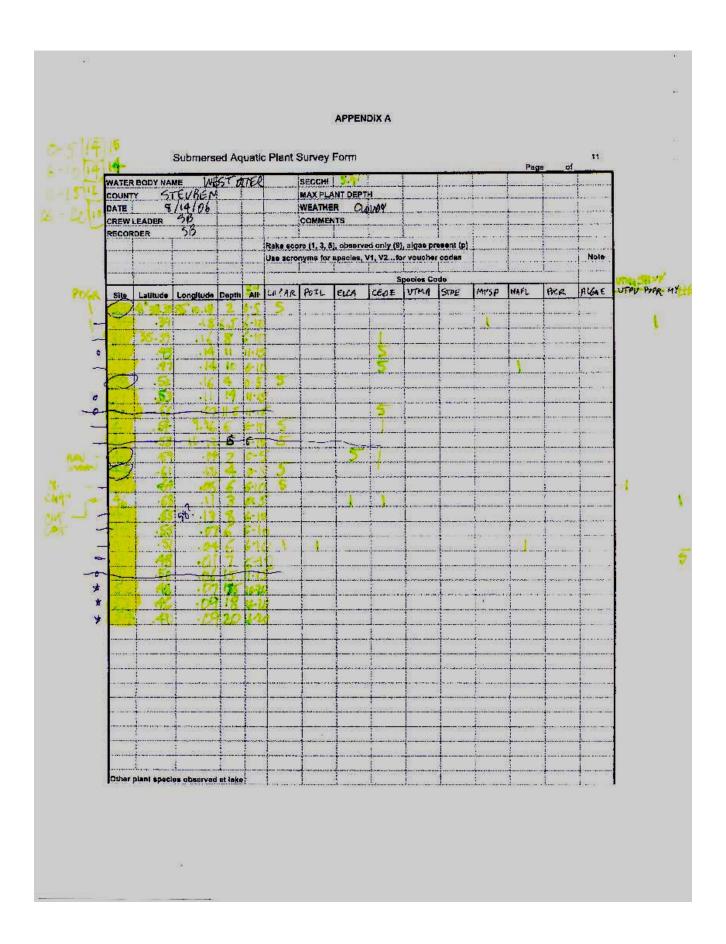
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ORGANIZATION:	AQUA	TC ENHAL	ICEME	NT &	SURVEY I	DATE: 8/ /06
	1,55-50-14	SITE INFO				
		Waterbody Nar		ION		SITE COORDINATES
Plant Bed ID:		WEST	OTTE	-RIA	KE	Center of the Bed
Bed Size:			0	-17 -	IIIE	Latitude:
Substrate:		Waterbody ID:		-		Longitude:
Mari?		Total # of Spec	ies		- H	Max. Lakeward Extent of Bed
High Organic?	-		-	yAbund	ance at Site	Latitude:
UT - 1222-124	20-20-0	S;	N:		F:	Longitude:
	SPE	CIES INFORM	ATION			
Species Co		Abundance	QE	Vehr.	Ref. ID	Individual Plant Bed Survey
CH ?AR	3					
MYSP2						
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POIL			E		IIII CSS	5
POCR 3						\
ALGA	Conclude a sy		2000		- 1000000000000000000000000000000000000) }
POPR 5						
UTMA		-			-	
NAFL			allive			
POPE 6	#F					
ELCA						Travel Patter
ZAPAGHORA)		Walter Co.			
POPE.	Z		ALC HEROLD		March .	Plant Bed ID # 01
-						
Swamplou	JE					
IRNI				-		mments:
LYSA		222 8				the state of the state of
NYTU						
SA						
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2000				1000	ik a samula	
REMINDER Substrate:	Mari	MATION				And the state of t
1 = Sitt/Clay 2 = Sitt w/Sand	1 = Pre				Canopy: 1 = < 2%	QE Code: Reference ID: 0 = as defined Unique number or
B = Sand w/Silt	0 = abs	3 = 21-80% Organic 4 = > 80%				1 = Species suspet letter to denote specific 2 = Genus suspected localion of a species;
= Hard Clay	7.7					2 = Genus suspected location of a species; 3 = Unknown referenced on attached ma
= Gravel/Rock = Sand	1 = Pre 0 = abs					
					Abundan	Voucher:
		Surface Cover prooted floating			1 = < 2% 2 = 2-20%	0 = Not Taken 1 = Taken, not varified
	F = Floa	ating, rooted			3 = 21-80%	2 = Taken, varified
	E = Eme	ergent omersed		4	= > 60%	AND THE PARTY OF T

ORGANIZATION: AQUI	FTIC ENHAN	CEME	NT &	SURVEY I	C. DATE: 8/4/06
	SITE INFO	SITE COORDINATES			
Plant Bed ID: 20	Waterbody Nan		1011		
Bed Size:	WEST	OTTE	R LA	KE	Center of the Bed
Substrate: 2	Waterbody ID:	non-see			Latitude:
Mari?		22	nes himita	K Ber E	Longitude:
High Organic?	Total # of Speci				Max. Lakeward Extent of
ragii Organici	V4 550 - 1 - 1 - 1 - 1 - 1 - 1 - 1	vanopy N:		ence at Site	Latitude:
SDI	CIES INFORMA				Longitude:
Species Code	Abundance			D 4 40	
CH ?AR V	3	QE	Vchr.	Ref. ID	Individual Plant Bed Survey
MYSP2V	17		-		~
				-exercise in the	
MYHE	2	STEPH			
POIL	2)
POCR 3 ALG A	9 11 11 22 100		7.23)
POPR 5					
UTMA L					1
NAFL L	3				
POPE 6	3				The state of the s
ELCA V					
ZAPA (HOAN)					Plant Bed ID # 01
POPE					
Swamplouse			755		
IRYI				VII 033555	Comments:
LYSA					VERY LITTLE MYSP - NO REGIR
NYTU	3		3-35-	MONEY TO THE	NOTED
SA					NULL
ARUM		Will teles			
NULU	2			DESTE	
TYLA					
POCO	2	- 54		CLYMAN S	
REMINDER INFOR	MATION		Y 10-11-11-11-11-11-11-11-11-11-11-11-11-1	~	Zara del Caración de Caración
Substrate: Marl 1 = Sill/Clay 1 = Pr 2 = Silt w/Sand 0 = at 3 = Sand w/Silt 4 = Hard Clay High 5 = Gravel/Rock 1 = Pr 5 = Sand 0 = ab	sent Organic esent		1 2 3	Canopy: 1 = < 2% 2 = 2-20% 3 = 21-80% 4 = > 80%	QE Code: Reference ID: 0 = as defined Unique number of letter to denote a location of a special suspected location l
N = No	Il Surface Cover prirocted floating pating, rooted		2	Abundane 1 = < 2% 2 = 2-20% 1 = 21-80%	: Voucher: 0 = Not Taken 1 = Taken, not varified 2 = Taken, varifiex

Appendix C Tier II Data Sheets 8/06





Appendix D 2007 Season IDNR Vegetation Permit Application

APPLICATION FOR AQUATIC VEGETATION CONTROL PERMIT

State Form 26727 (R / 11-03) Approved State Board of Accounts 1987 Whole Lake

X Multiple Treatment Areas Check type of permit

FOR OFFICE U	SE ONLY
License No.	
Date Issued	
Lake County	

Return to: Page _1 of _3 DEPARTMENT OF NATURAL RESOURCES Division of Fish and Wildlife Commercial License Clerk 402 West Washington Street, Room W273 Indianapolis, IN 46204

RUCTIONS. Please print or type information		FEE: \$5.00
Applicant's Name	Lake Assoc. Name	
West Otter Lake Assn. Dana Slack	West Otter Lake Association	
Rural Route or Street		Phone Number
60 Lane 201A West Otter La	ike	
City and State Angola, IN 46703		ZIP Code
Certified Applicator (if applicable)	Company or Inc. Name	Certification Number
Rural Route or Street		Phone Number
City and State		ZIP Code
Lake (One application per lake)	Nearest Town	County
West Otter	Angola	Steuben
Does water flow into a water supply		Yes X No
Total acres to be	N41.64411 W85.16744	
controlled max 15 Proposed shoreline treatment leng Maximum Depth of Treatment (ft) 15 Expected date(s) of treatment(s)	th (ft) max 3250 Perper	idicular distance from shoreline (ft) varies (see map)
tment method: X Chemical Physical	Biological Control	Mechanical
pased on treatment method, describe chemical used, method of physical rate for biological control. Navigate 2-4-D	al or mechanical control and disp	osal area, or the species and stocking
Plant survey method: X Rake X Visual Other (spo		
Aquatic Plant Name	Check if Target Species	Relative Abundance % of Community
Whitstern pw		2.5
Curlyleaf pondweed		2.5
Eurasian watermilfoil	X	5
Chara		20
Variable watermilfoil		10
Coontail		20
Elodea		20
Great Bladderwort		5

Filamentous algae

White water lily Arrowhead

Spadderdock

9 2

2

2 100



APPLICATION FOR AQUATIC VEGETATION CONTROL PERMIT

State Form 26727 (R / 11-03)
Approved State Board of Accounts 1987
Whole Lake X Multiple Treatment Areas
Check type of permit

FOR	OFFICE USE OF	NLY
License	No.	
Date Iss	ued	_
Lake Co	ounty	

Return to: Page 2 of 3
DEPARTMENT OF NATURAL RESOURCES Return to: Division of Fish and Wildlife Commercial License Clerk 402 West Washington Street, Room W273 Indianapolis, IN 46204

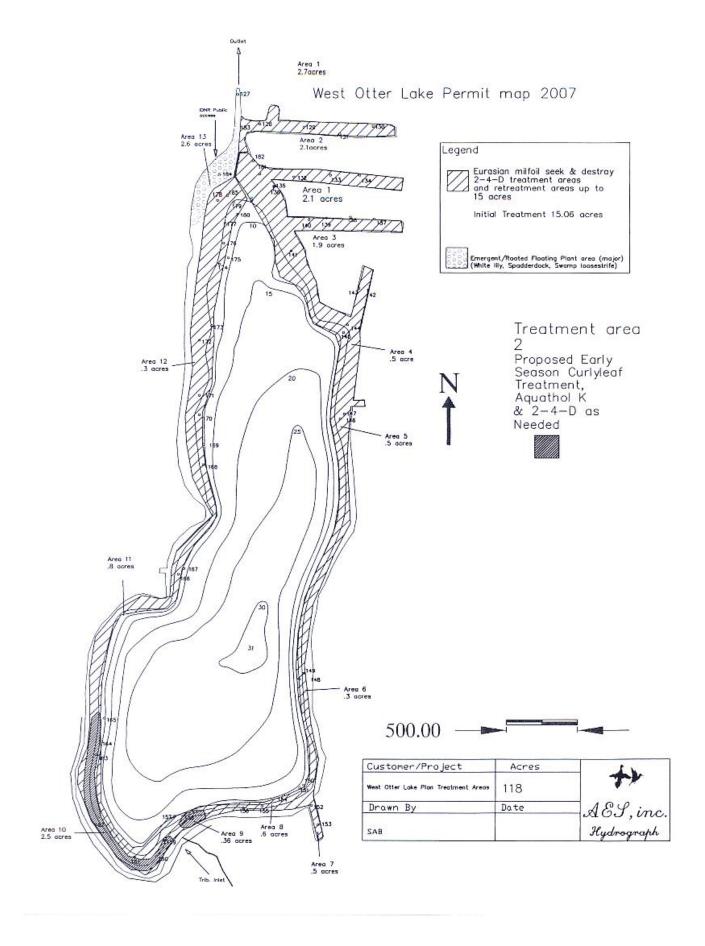
100

RUCTIONS: Please print or type information	Lake County	FEE: \$5.00	
Applicant's Name	Lake Assoc. Name		
West Otter Lake Assn. Dana Slack	Wes	West Otter Lake Association	
Rural Route or Street 60Ln 201A West Q	tter Lake	Phone Number	
City and State	del Lake	ZIP Code	
Angola, IN 46	703	B10 (1/1/02/5027)	
Certified Applicator (if applicable)	Company or Inc. Name	Certification Number	
Rural Route or Street		Phone Number	
City and State		ZIP Code	
Lake (One application per lake)	Nearest Town	County	
West Otter	Angola	Steuben	
Does water flow into a water supply		Yes X No	
Please complete one section for EACH treatment area.	Attach lake map showing treatment ar	rea and denote location of any water supply intake.	
Treatment Area # 2 LAT/LONG or	UTM's N41 deg 37' 52.0" W85	deg 10' 12.0"	
Total acres to be		ndicular distance from shoreline (ft) vanes (see map)	
Maximum Depth of	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Transaction and artistic (14) Seems (mis map)	
Treatment (ft) Expected date(s) of treat tment method: X Chemical Physical		7	
tment method: X Chemical Physical	Biological Control	Mechanical	
based on treatment method, describe chemical used, method	of physical or mechanical control and dis	posal area, or the species and stocking	
rate for biological control. Aquathol K liquid			
Plant survey method: X Rake X Visual	Other (specify)		
Aquatic Plant Name	Check if Target Species	Relative Abundance % of Community	
Whitstem pw		2.5	
Curlyleaf pondweed	Х	2.5	
Eurasian watermilfoil	Х	5	
Chara		20	
Variable watermilfoil		10	
Coontail		20	
Elodea		20	
Great Bladderwort		5	
Filamentous algae		9	
White water lily		2	
Arrowhead		2	
Spadderdock		2	

COMMERCIAL LICENSE CLERK

INDIANAPOLIS, IN 46204

402 WEST WASHINGTON STREET ROOM W273



Appendix E Additional Resources

Calendar of lake management, conferences, classes, and workshops

Lake Pleasant residents can attend the following events to learn more about lake management and converse with other lake associations and lake management professionals regarding treatment programs

2007

March 30th and 31st, Indiana Lakes Management Society conference. Lake Monroe, Bloomington Indiana. More information is available at www.indianalakes.org or by calling 260-665-8226

October 2006, Several local workshops offered by the Indiana Lakes Management Society, dates to be announced. More information is available at www.indianalakes.org or by calling 260-665-8226

Sources of local, state, and federal funding and information

Funding assistance for watershed wetland and grassland restoration is available from:

Ducks Unlimited Great Lakes/Atlantic Regional Office 331 Metty Drive, Suite #4 Ann Arbor, MI 48103 734-623-2000

Pheasants Forever, Northeast Indiana Chapter Habitat Officer, Dave Hurley 1003 County Road 8 Corunna, IN 46730

Other help for watershed improvements can be obtained from:

Indiana Department of Natural Resources Division of Fish and Wildlife Room W265 402 W. Washington Street Indianapolis, IN 46204-2739 317-233-5468

USDA Natural Resources Conservation Service 1220 N 200W Angola, IN 46703

Wood-Land-Lakes RC&D Peachtree Plaza 200 1220 N 200 W -Ste J Angola, IN 46703 260-665-3211, Ext. 5